

# THE JOURNAL OF MEDICAL EDUCATION

OFFICIAL PUBLICATION OF  
THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES



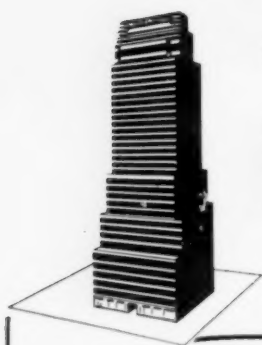
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A number of new illustrations have been added throughout, and some of the old ones have been improved. Photographs of brain stem sections in three planes are included and the use of line sketches to indicate the location of these sections is intended to aid the student's understanding of the subject.

**PREPARATION FOR MEDICAL EDUCATION: A Restudy**

*The Report of the Committee on the Resurvey of Preprofessional Education in the Liberal Arts College, Association of American Medical Colleges. Edited by Aura E. Severinghaus, Ph.D.; Harry J. Carman, Ph.D.; and William E. Cadbury, Jr., Ph.D. 404 pp., 5¾ x 8¾, 23 line drawings, \$7.95*

Within the pages of this latest report is a comprehensive study and evaluation of the role of the liberal arts college in preparing students for medical school. This work reports the results of the second National Buck Hill Falls Conference on this subject. The authors stress the importance of a liberal arts education as preparation for medical or any other profession, and the role of the secondary school in preparing students for such training is considered.

Many facets of the original study were repeated to determine what had taken place in the participating colleges in intervening years, and this is related to the total problem of preprofessional education. The five major topics considered in the restudy were: the total educational span; the gifted student and how to deal with him; the culminating year; medical school admission problems; and the place of scientific disciplines in liberal arts education.

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vidual specific syndromes are discussed in *Part II*. Dr. Gregory first defines and classifies the disorder. He then describes the mental examination, the psychological evaluation, the physical examination and the differential diagnosis. Treatment is discussed frankly and simply.

By IAN GREGORY, M.A., M.D. (Camb.), D. Psych. (Tor.), M.P.H. (Mich.), Assistant Professor of Psychiatry, and Coordinator of Undergraduate Education in Psychiatry, University of Minnesota Medical School. About 480 pages, 6½" x 9¾", about \$9.50.

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Official Publication of the Association of American Medical Colleges

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## INFORMATION FOR CONTRIBUTORS

*The Journal of Medical Education* serves as an international medium for the exchange of ideas in medical education, as well as a means of communicating the policies, programs, and problems of the Association. The Editorial Board welcomes the submission of manuscripts concerned with the broad field of medical education; this includes preparation for medical education; the medical school experience; intern and resident education; graduate and postgraduate medical education. The Editorial Board recognizes that medical education includes the activities of faculty, students, administrators, and those of the practicing profession who also teach and learn. Thus, it invites communications from any of these sources.

**Manuscripts** should be submitted in duplicate. All manuscripts are reviewed by the Editorial Board before acceptance for publication. All copy, including footnotes, tables, and legends, should be typed double-spaced. Each diagram or graph or photograph should have a brief legend. Each table should be typed on a separate sheet of paper. References should refer to published material only, must be submitted in alphabetical order, and should include, in order: author, title, journal abbreviation (*Quarterly Cumulative Index Medicus* form), volume number, page, and year; book references should also include editors, edition, publisher, and place of publication.

**Galley proofs** will be mailed to authors for correction before publication and should be returned within 48 hours after receipt.

**Reprints** may be ordered, when galley proofs are returned, in multiples of 100, at a price depending on the length of the article; prices are listed on the reprint order form.

**Medical Education Forum** includes editorials, letters, comments, criticisms, and excerpts from important addresses.

**News from the Medical Schools:** Material for this section should be transmitted to the News Editor, Miss Neva Resek, 2530 Ridge Avenue, Evanston, Illinois. Announcements of major faculty and administrative appointments, news of distinguished visitors and significant educational developments will be included. It is not possible to publish notices on grants-in-aid for scientific research.

**Items of Current Interest:** Audio-visual news and notices from national and federal agencies appear in this section.

## CORRESPONDENCE

Address all correspondence regarding manuscripts, editorials, and letters to the Editor to the Editorial Office, University Hospitals, University of Wisconsin, Madison 6, Wisconsin.

Address all correspondence concerning reprints, subscriptions, change of address, and back numbers to the Business Office, Association of American Medical Colleges, 2530 Ridge Ave., Evanston, Ill. All changes of address should provide both the old and the new address.

Address all correspondence concerning news, announcements, and personnel exchange to the office of the Association of American Medical Colleges, c/o Miss Neva Resek, 2530 Ridge Avenue, Evanston, Illinois; address all correspondence concerning advertising to Miss Helen Claire Herman, 2530 Ridge Avenue, Evanston, Illinois.

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**References:**

1. Bollinger, R. E., et al.: J. Kansas M. Soc. 61:135 (March) 1960.
2. Williams, R. H.: Diabetes, New York, Paul B. Hoeber, Inc., 1960, pp. 491, 492.
3. Bradley, R. F.: Ann. New York Acad. Sc. 82:513 (Sept 25) 1959.
4. Sherry, S., et al.: Ann. New York Acad. Sc. 71:249 (July 10) 1957.

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# Calendar of Meetings

## ASSOCIATION OF AMERICAN

### MEDICAL COLLEGES

72nd Annual Meeting, Nov. 13-15, 1961

Queen Elizabeth Hotel, Montreal, Canada

### 1961

#### AUGUST

AMERICAN CONGRESS OF PHYSICAL MEDICINE AND REHABILITATION, Sheraton-Cleveland Hotel, Cleveland, Aug. 27-Sept. 1. Dorothea C. Augustin, 30 N. Michigan Ave., Chicago 2, Executive Secretary.

#### SEPTEMBER

AMERICAN ASSOCIATION OF MEDICAL CLINICS, Barbizon Plaza Hotel, New York, Sept. 27-29. Dr. Joseph B. Davis, Davis Clinic, 131 N. Washington St., Marion, Ind., Secretary-Treasurer.

AMERICAN ASSOCIATION FOR THE SURGERY OF TRAUMA, Drake Hotel, Chicago, Sept. 28-30. Dr. William T. Pitts Jr., 3400 Spruce St., Philadelphia 4, Secretary.

AMERICAN HOSPITAL ASSOCIATION, Atlantic City, Sept. 25-28. Mr. Maurice J. Norby, 840 North Lake Shore Dr., Chicago 11, Secretary.

COLLEGE OF AMERICAN PATHOLOGISTS, Seattle, Sept. 30-Oct. 3. For information write: Dr. A. H. Dearing, Prudential Plaza, Suite 2115, Chicago 1.

#### OCTOBER

ACADEMY OF PSYCHOSOMATIC MEDICINE, Emerson Hotel, Baltimore, Md., Oct. 12-14. Dr. George Sutherland, 3700 N. Charles St., Baltimore, Program Chairman.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, Palmer House, Chicago, Oct. 8-13. Dr. William L. Benedict, 15 Second Street S.W., Rochester, Minn., Executive Secretary.

AMERICAN ACADEMY OF PEDIATRICS, Palmer House, Chicago, Oct. 2-5. Dr. E. H. Christopherson, 1801 Hinman Ave., Evanston, Ill., Executive Director.

AMERICAN ASSOCIATION OF MEDICAL RECORD LIBRARIANS, Benjamin Franklin Hotel, Philadelphia, Oct. 9-12. Miss Doris Gleason, 840 N. Lake Shore Dr., Chicago 11, Executive Director.

AMERICAN COLLEGE OF GASTROENTEROLOGY, Hotel Cleveland, Cleveland, Oct. 22-25. Mr. Daniel Weiss, 33 West 60th St., New York 23, Executive Director.

AMERICAN COLLEGE OF SURGEONS, Conrad Hilton Hotel, Chicago, Oct. 2-6. Dr. William E. Adams, 40 E. Erie St., Chicago 11, Secretary.

AMERICAN MEDICAL WRITERS' ASSOCIATION, New York City, Oct. 6-7. Leslie L. Lewis, L.L.B., Ravenswood Hospital, 1931 W. Wilson Ave., Chicago 40, Asst. Secretary.

AMERICAN SOCIETY OF ANESTHESIOLOGISTS, INC., Statler Hilton, Los Angeles, Oct. 22-27. Mr. John W. Andes, 515 Buena Highway, Park Ridge, Ill., Executive Secretary.

AMERICAN SOCIETY OF MICROBIOLOGY, Commodore Hotel, New York City, Oct. 31-Nov. 2. R. W. Sarber, 19875 Mack Ave., Detroit 36, Executive Secretary.

COLLEGE OF AMERICAN PATHOLOGISTS, Olympic Hotel, Seattle, Oct. 1-7. Dr. Arthur H. Dearing, Prudential Plaza, Suite 2115, Chicago, Executive Director.

### NOVEMBER

AMERICAN COLLEGE OF CHEST PHYSICIANS, Interim Session, Brown-Palace Hotel, Denver, Nov. 25-27. Mr. Ward Bentley, 112 E. Chestnut St., Chicago 11, Executive Assistant.

AMERICAN MEDICAL ASSOCIATION, CLINICAL MEETING, Denver, Nov. 27-30. Dr. F. J. L. Blasingame, 535 N. Dearborn, Chicago 10, Executive Vice-President.

AMERICAN MEDICAL WOMEN'S ASSOCIATION, Cleveland, November. Miss Lillian T. Majally, 1790 Broadway, New York 19, Executive Director.

AMERICAN PUBLIC HEALTH ASSOCIATION, Cobo Hall, Detroit, Nov. 13-17. Dr. Berwyn F. Mattison, 1790 Broadway, New York 19, Executive Director.

ASSOCIATION OF MILITARY SURGEONS (68TH ANNUAL CONVENTION), Mayflower Hotel, Washington, D.C., Nov. 5-8. Col. Robert E. Bitner, U.S.A., Ret., 1726 Eye St., N.W., Washington 6, D.C., Secretary.

INTERSTATE POSTGRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA, Cleveland Auditorium, Cleveland, Nov. 13-16. Mr. Roy T. Ragatz, Box 1109, Madison 1, Wis., Executive Director.

### DECEMBER

AMERICAN ACADEMY OF DERMATOLOGY AND SYPHILOLOGY, Palmer House, Chicago, Dec. 2-7. Dr. Robert R. Kierland, Mayo Clinic, Rochester, Minn., Secretary-Treasurer.

### 1962

#### JANUARY

AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS, Palmer House, Chicago, Jan. 27-Feb. 1. Mr. John K. Hart, 29 East Madison St., Room 910, Chicago 2, Executive Secretary.

AMERICAN COLLEGE OF SURGEONS, SECTIONAL MEETING FOR SURGEONS AND GRADUATE NURSES, Statler-Hilton and Biltmore Hotels, Los Angeles, Jan. 29-Feb. 1. Dr. William E. Adams, 40 E. Erie St., Chicago 11, Secretary.

#### FEBRUARY

AMERICAN ACADEMY OF ALLERGY, Denver-Hilton Hotel, Denver, Feb. 5-7. Mr. James O. Kelley, 756 North Milwaukee St., Milwaukee 2, Wis., Executive Secretary.

AMERICAN ACADEMY OF OCCUPATIONAL MEDICINE, Pittsburgh-Hilton Hotel, Pittsburgh, Pa., Feb. 7-9. Dr. Paul J. Whitaker, Allis-Chalmers Manufacturing Co., P.O. Box 512, Milwaukee 1, Wis., Secretary.

AMERICAN COLLEGE OF RADIOLOGY, Roosevelt Hotel, New York City, Feb. 7-10. Mr. William C. Stronach, 20 N. Wacker Dr., Chicago 6, Executive Director.

SOCIETY OF UNIVERSITY SURGEONS, Cleveland, Ohio, Feb. 8-10. Dr. C. Frederick Kittle, University of Kansas Medical Center, Kansas City 12, Kansas.

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(1) Matthias, J. Q.; Misiewicz, J. J., and Scott, R. B.: *Brit. M. J.* 2:1837-1840 (Dec. 24) 1960.

(2) Coggins, P. R.; Ravdin, R. G., and Eisman, S. H.: *Cancer* 17:1254-1260 (Nov.-Dec.) 1960.

(3) Papac, R.; Petrakis, N. L.; Amini, F., and Wood, D. A.: *J.A.M.A.* 172:1387-1391 (March 29) 1960.



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Thrombocytopenia is rarely observed on this regimen. If platelet counts of less than 100,000/cu. mm. are observed, the patient should be watched carefully. If platelets continue to decrease, Cytoxan should be discontinued.

The patient who has had previous treatment with alkylating agents, or x-ray, or is debilitated may be more susceptible to bone marrow depression, and initial Cytoxan doses should be more conservative than the above. Such patients should have more frequent hematologic evaluation. Good medical practice demands access to a reliable hematologic laboratory when using Cytoxan.

**For neoplasms relatively resistant to Cytoxan—**Patients with carcinomas and other malignant neoplasms believed to be less susceptible to Cytoxan therapy are given a dose of 4 to 8 mg./Kg./day intravenously. Unless there are indications to the contrary, this dose is continued for 6 days, then stopped. Leukopenia usually ensues on the tenth to fourteenth day after the first dose of Cytoxan. Thrombocyte reduction is not common, and platelets may actually increase. The leukocyte count promptly returns toward normal levels in most cases, and as it begins to increase, sufficient Cytoxan is administered to maintain it near 2000 to 5000/cu. mm. This may be accomplished by two intravenous injections weekly, or by oral administration, or by a combination of both routes. An oral dosage of 50 to 200 mg. daily or an intravenous injection of 5 mg./Kg. twice weekly will usually suffice.

The platelet and leukocyte counts should be followed carefully, and the prior treatment history of patients carefully evaluated as delineated above.

**Leukopenia as a guide to adequacy of dosage—**The best objective measure for dosage seems to be the number of circulating white blood cells. This is used as an index of the activity of the hematopoietic system, especially the bone marrow. The mechanism by which Cytoxan causes a reduction in the level of white blood cells is not known, but cessation of dosage results in an increase in the level, indicating that the hematopoietic system had not been permanently affected. When large doses (8 mg./Kg./day for 6 days) are given initially, the white cell count falls rapidly. Following the cessation of the 6-day course, the white cells may continue to decline for as long as 8 days and then increase. The reduction of the white cell count during Cytoxan therapy and its subsequent increase when therapy is discontinued can be repeated in the same patient. Maximal reduction in leukocyte count indicates the maximal permissible Cytoxan level for therapeutic effect. Leukopenic patients must be watched carefully for evidence of infection.

Total white blood cell and thrombocyte counts should be obtained 2 or more times weekly in order to evaluate therapy and to adjust dosage.

**SIDE EFFECTS:** Although Cytoxan is related to nitrogen mustard, it has no vesicant effect on tissue. It does not traumatize the vein when injected intravenously, nor does it cause any localized tissue reaction following extravasation. It may be administered intravenously, intramuscularly, intraperitoneally, intrapleurally or directly into the

tumor, when indicated. It is apparently active by each of these routes.

Nausea and vomiting are common and depend on dose and on individual susceptibility. However, many investigators accept the nausea and vomiting in favor of maintaining maximal therapy. The vomiting can be controlled with antiemetic agents.

Alopecia is a frequent side reaction to Cytoxan therapy. It has been observed in 28% of the patients studied in this country. The incidence is greater with larger doses. The loss of hair may first be noted about the 21st day of therapy and may proceed to alopecia totalis. This effect is reversed following discontinuance of Cytoxan; during reduced maintenance therapy, hair may reappear. It is essential to advise the patient in advance concerning this effect of the drug.

Dizziness of short duration and of minor degree has occasionally been reported.

Leukopenia is an expected effect and can be used as a guide to therapy. Thrombocytopenia may occur, especially after large doses. The leukocyte or platelet counts of an occasional patient may fall precipitously after even small doses of Cytoxan, as with all alkylating agents. The drug should be discontinued in such patients and reinstituted later at lower dosage after satisfactory hematologic recovery has occurred. Prior treatment with x-ray or with other chemotherapeutic agents frequently causes an earlier or exaggerated leukopenia or thrombocytopenia after Cytoxan medication. Only rarely has there been a report of erythrocyte or hemoglobin reduction.

**ADMINISTRATION:** Add 5 cc. sterile water (Water for Injection, U.S.P.) to 100 mg. of Cytoxan in the sterile vial (add 10 cc. to 200 mg. vial). Shake, allow to stand until clear, remove with sterile syringe and needle and inject.

The freshly prepared solution of Cytoxan may be administered intravenously, intramuscularly, intraperitoneally, intrapleurally, or directly into the tumor. The solution should be administered promptly after being made but is satisfactory for use for three hours after preparation.

If the patient is receiving a parenteral infusion, the Cytoxan solution may be injected into the rubber tubing if the solution is glucose or saline.

No thrombosis or thrombophlebitis has been reported from injections of Cytoxan. Extravasation of the drug into the subcutaneous tissues does not result in local reactions.

**PRECAUTIONS:** Cytoxan should not be given to any person with a severe leukopenia, thrombocytopenia, or bone marrow infiltrated with malignant cells. It may be given with suitable precautions to patients who have had recent x-ray treatment, recent treatment with a cytotoxic agent, a surgical procedure within 2-3 weeks, or debilitated patients.

**AVAILABILITY:** Cytoxan is available as follows:

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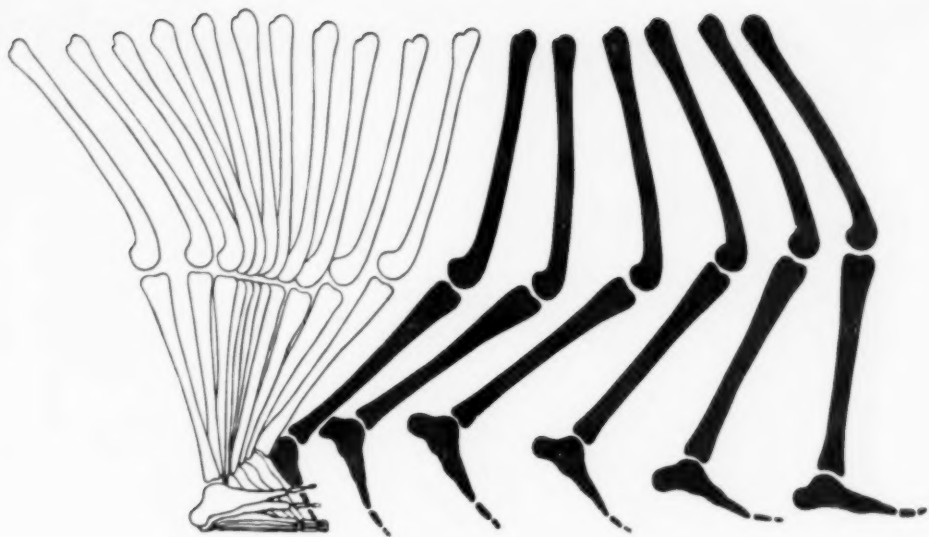
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1. Norcross, B. M., and Winter, J. A.: Methylprednisolone acetate: a single preparation suitable for both intra-articular and systemic use. *New York J. Med.* 61:552 (Feb. 15) 1961.

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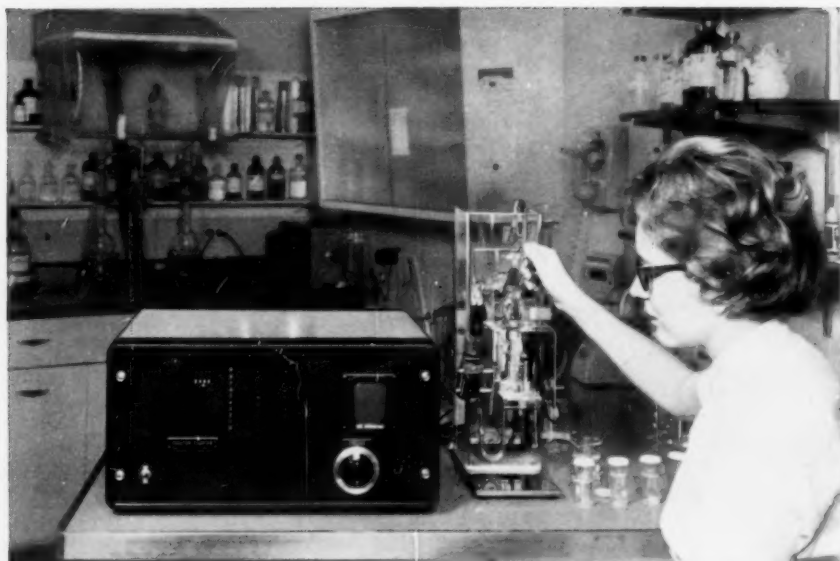
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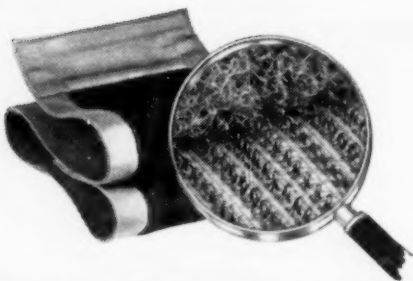
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# The Journal of MEDICAL EDUCATION

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# *The Journal of* MEDICAL EDUCATION

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## Relationships between Medical and Nursing Education

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### INTRODUCTION

At a time when there is increasing concern about world-wide health problems and the need to educate personnel from this country and other countries of the world to cope with these problems, effective communication and joint planning between medical and nursing educators and their students are of critical importance, not only to our national welfare but to international welfare as well.

In this paper an attempt has been made to describe some of the changes which in recent years have resulted in a breakdown of relationships between medicine and nursing, to discuss some of the consequences of the breakdown, and to suggest how the two professions could work together to alter the situation which now exists.

Prior to World War II most of the care of hospitalized patients was provided by doctors and registered nurses. Communication between the two groups concerning the care of patients was usually very good. Experienced nurses on the various hospital divisions participated in the education of medical students, and physicians participated in the education of nursing students. Interest

of each group in the other was taken for granted, and feelings of mutual concern and respect were readily communicated to one another and, in turn, to the patients for which they were responsible.

During the past 20 years considerable changes have taken place in both medical and nursing practice and medical and nursing education. In addition, tremendous changes have occurred in hospitals and other institutions in which medical and nursing care are provided. As a result, many needs of patients and their families during periods of stress associated with illness are not being met. The concern of the public about the inadequacies of medical and nursing care is being expressed in the many adversely critical articles which have appeared recently in popular periodicals. It seems imperative that physicians and nurses, as well as all other groups who contribute to health and medical care, assess the situation which exists and take steps to alter it. The place in which it would seem most logical to begin the process of change is in the medical centers of universities in which both physicians and nurses are being educated, and in which students from each discipline have access to the same hospitals,

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† Assistant Professor, School of Nursing.

out-patient departments and community agencies.

There are many questions which might be jointly explored by medical and nursing educators and their students. Some of these are related to the fact that the number of physicians in relation to the population as a whole is decreasing and that, of those who are enrolled in educational programs in medicine, a higher proportion are being prepared for specialization and research and a smaller proportion for general practice (6, 8). Other questions are concerned with the organization of nursing services and the changing role of the professional nurse in relation to that of semi-professional nursing personnel. Questions which nurse educators are eager to explore with medical educators and their students are the following:

1. If there are to be fewer general practitioners in the years to come and a larger number of highly trained medical specialists, what will be the role of the professional nurse of the future, and how should she be educated?

2. Will all professional nurses of the future need to broaden and deepen their knowledge to be effective colleagues of physicians in the care of patients with complex medical and nursing problems?

3. If the professional nurse becomes more of a colleague of the physician must she continue to pass on a larger number of traditional nursing care functions to nursing personnel with lesser preparation? If this is done, how should the latter group be prepared?

4. How should nursing services be organized to assure that semi-professional nursing personnel receive the quality of teaching and supervision essential for safe and effective nursing care?

5. What should be the relationship between the nurse responsible for general supervision of nursing care and the clinically expert nurse? What should be the

relationship of each of these to hospital and nursing service administration?

In raising these questions it should be made clear that the preparation of nursing personnel who can provide effective nursing care for patients and skillful professional assistance to the physician is the major responsibility of university schools of nursing. Nurse educators feel strongly, however, that, to reach these objectives, it is urgent that larger numbers of nurses have the preparation which is essential for effective functioning in leadership positions in the nursing field. In this paper an effort has been made to describe the kinds of leadership personnel the writers believe essential and the ways in which such leadership will be expected to function in the years to come. The need for leadership personnel, in itself, is a direct outgrowth of the many changes to which the profession of nursing has been subjected in recent years.

#### THE PAST AND THE PRESENT

Prior to World War II most of the nursing care of hospitalized patients was provided by graduates of 3-year programs offered by hospital school of nursing and by students enrolled in these programs. Education was of an apprenticeship type, and preparation for supervision or administration was obtained primarily through experience in the hospital setting. A small proportion of nurses took postgraduate courses of from 3 to 6 months in length in clinical nursing areas such as maternity nursing or pediatric nursing. These courses, too, were of an apprenticeship type, and service to a particular hospital was often the chief motive underlying the offering of a so-called postgraduate course. For upper-class patients much of the care in hospitals, as well as in homes, was provided by private duty nurses. For lower-class patients in large urban com-

munities, care in homes was provided by nurses employed by visiting nurse associations. Untrained practical nurses provided some home care in both urban and rural communities; these workers, however, were seldom employed in hospitals. Preparation for teaching in schools of nursing or for public health nursing was looked upon as advanced preparation which should be provided by colleges and universities in baccalaureate-degree programs. Even in the so-called university schools of nursing, the majority of which were associated with medical centers and large teaching hospitals, only a small proportion of the students were enrolled in the program which led to a baccalaureate degree. The majority were enrolled in traditional, 3-year, apprenticeship-type programs which differed little from those offered by private hospitals. The majority of teaching hospitals used students to provide the bulk of nursing service. The dean or director of the school was also the director of nursing service and the nursing service supervisors, and head nurses were responsible for most of the teaching in clinical nursing areas. The quality of the program was evaluated in relation to the number and types of disease conditions with which the student had experience and the extent to which highly trained medical specialists participated in the teaching program. The concept that nurse teachers should be as well prepared to teach nursing as physicians to teach medicine was novel. It was generally accepted that the graduate of a so-called "good school of nursing" knew all there was to know about nursing. To prepare for the teaching of nursing she needed only to learn more about methods of teaching and curriculum construction.

During the past 20 years the entire picture has changed. The shortage of registered nurses, which quickly became acute at the beginning of World War II,

has continued, despite efforts of the nursing profession to attract larger numbers of young women into the nursing field. In 1958 there were 236,095 nurses employed in hospitals and schools of nursing. Of this number, 181,183 were in general duty positions. During that same year 86,687 practical nurses and 281,811 nursing aides and attendants were employed in hospitals (1). The increase in practical nurses and aides alone has markedly changed the functioning of the registered nurse in the hospital setting. It has become imperative that new patterns of nursing care be developed and that a larger number of hospital nurses be prepared for new and highly complex supervisory, teaching, and direct nursing care functions.

Many complex tasks, formerly performed by physicians, have been passed on to the registered nurse. Yet, the lines of communication between the two groups are far less effective than they were in years past. The nurse has taken on many hospital management functions associated with the ever-increasing complexity of modern hospitals. At present the nurse is caught in a triangle which includes the patient who wants good technical care but also wants to be understood and accepted as an individual; the physician who wants good nursing care for his patients, as well as competent assistance in carrying out his own highly complex tasks; and hospital management which wants good patient care but, in addition, a well-run nursing service at the least possible cost.

In years past, public health nursing was looked upon as a highly specialized field. It was recognized that the student who was prepared only in the hospital setting was ill equipped to function in public health nursing. To provide preparation in this field, universities with schools and departments of public health were encouraged to develop programs in

public health nursing. Initially, these programs, too, were of relatively short duration. However, as time went on, they were incorporated into broader programs leading to a baccalaureate degree.

The public health nurse of the past has worked almost exclusively in community rather than in institutional settings. Because of this she has usually become much more aware of social problems associated with illness than has the hospital nurse. She has had much broader contact with various social agencies concerned about patient and family care, and with community leaders responsible for the development and support of these agencies. Because of her broader outlook she has been looked to not only for leadership in the field of nursing but in the development of many broad health and social movements as well.

The public health nurse was formerly engaged primarily in programs concerned with prevention of disease and promotion of health. The hospital nurse, on the other hand, was involved almost exclusively with care during illness. Today, the changing trends in health and medical care are forcing all nurses, irrespective of where they are employed, to accept responsibility for all aspects of care including prevention of disease, promotion of health, and care during illness and rehabilitation.

As patterns of care change, educational programs to prepare nursing personnel for such care must also change. At present, programs which prepare for beginning practice in nursing vary in length from the 1-year program which prepares for practical nursing to the 4- or 5-year program which prepares for practice at a professional level. Tremendous concern has been expressed in recent years about the shortage of nurses, and strenuous efforts have been made by nurses themselves and by hospital and medical associations to attract

larger numbers of young women into the various types of basic programs. Much less effort has been exerted in recruiting and preparing nurses for top leadership positions. Yet, there is a direct relationship between the quality of preparation of leadership personnel and the quality of care which all nursing personnel will give in the years to come.

In 1957 the National League for Nursing (4) estimated that, of 430,000 practicing registered nurses, 13 per cent were in administrative, teaching, supervisory, or consultative positions, and an additional 20 per cent were in positions in which functioning at a relatively independent level was expected. The League suggested that, for the future, the first group should be prepared in master's and higher degree programs in nursing and the second group in baccalaureate degree programs.

The number of nurses now prepared at the levels suggested above is far below that recommended by the National League. Faculty members in schools of nursing are, in general, the best prepared group, but even here the picture causes real concern, since less than one-third hold a master's degree, and about one-fifth hold no degree (1). The faculty in collegiate schools of nursing are much better prepared than those in hospital schools. However, with the need to expand nursing programs at master's and higher degree levels, the problem of finding adequately prepared faculty for university teaching becomes one of major concern. Educational preparation of public health nurses in supervisory and administrative positions is similar to that of faculty members in schools of nursing of all types.

In contrast to nurse educators and public health nurses, the preparation of hospital nursing service personnel presents a less favorable picture. This is particularly true of nurses holding re-



sponsible administrative positions such as head nurse, supervisor, and director of nursing service. In university medical centers and in hospitals with schools of nursing, the preparation of nursing service personnel is, in general, better than in hospitals without schools of nursing. As hospital operation and hospital care of patients increase in scope, cost, and complexity, it becomes increasingly apparent that nurses in responsible positions in hospitals must have better preparation for their jobs than the majority now have. There is urgent need for better understanding of the situation on the part of practicing physicians, medical educators, and hospital administrators and urgent need for their support in effecting change.

On administrative and supervisory nurses in the hospital setting today falls the responsibility for planning for nursing care during a 24-hour day and a 7-day week. On them also falls the responsibility for keeping all nursing personnel under their direction reasonably happy and satisfied, as well as functioning at a high level of competency. The problems associated with these responsibilities are complex in any hospital of today, but in teaching hospitals they are often of a magnitude which defies description. It would seem reasonable to assume that the more complex the situation, the greater would be the need to attract and to hold qualified nursing personnel. It would then follow that the teaching hospital would need a higher proportion of well prepared nursing service personnel than the nonteaching institution.

Nurse educators in collegiate schools of nursing are presently deeply concerned about the relatively small number of graduates from collegiate schools who remain in hospital nursing for any great length of time; this, despite the fact the university schools of nursing are

making strenuous efforts to teach their students to provide individualized nursing care of the highest quality, to work with other nursing personnel who are contributing to such care, and to understand their own contribution in relation to that of doctors, social workers, and other members of the health team. Many, of course, marry either before or soon after graduation, and, when their children arrive, the majority drop out of active nursing. Of those who remain, however, many report that, in the hospital setting, they are not challenged to express their ideas about patient care or nursing service management or made to feel they have an important part in the total hospital enterprise. As a result, the majority leave to enter public health nursing or some other more challenging field. Too few of the married graduates of collegiate schools return to the hospital setting after their children reach school age. Of nurses now enrolled in master's and doctoral programs in nursing, the majority are preparing either for teaching in schools of nursing or for administration or supervision in the public health nursing field. Inequalities in preparation of nursing education and nursing service personnel who must work together in the same setting result in dilemmas for both groups. Frequently relationships between them deteriorate, and both patient care and student education suffer as a result.

In many university centers, it is being proposed that the faculty of the school of nursing, as in years past, accept responsibility for nursing care as well as for student education, and in a few university settings this plan is being tried out. However, most nursing school faculty members are carrying unusually heavy teaching responsibilities brought about by an ever-increasing number of students. They are also struggling to improve their own preparation in clini-

cal nursing areas and in nursing research. To be responsible for nursing care of seriously ill patients on a 24-hour day and 7-day week basis seems a formidable task, even though such an arrangement would undoubtedly be of value in increasing their competence in patient care and in teaching. An alternative solution would be for teaching hospitals to require of their administrative and supervisory nursing personnel educational preparation in keeping with the responsibilities they are expected to carry and comparable to that of nursing school faculty members. This would require master's degree preparation for head nurses and supervisors, and postmasters to doctoral preparation for directors of nursing service and their assistants. With such preparation it would be a relatively simple matter for teachers and supervisory personnel to exchange positions at intervals and, in so doing, for the teacher to maintain direct contact with nursing practice and the supervisor to learn more about problems relating to education of the next generation of nurses.

#### PLANNING FOR THE FUTURE

The quality of preparation of nurses who function in leadership positions, whether in nursing education or nursing service, is today being recognized as of supreme importance. It isn't having a degree that matters, but what that degree signifies in the way of preparation. For nurses who function as teachers or supervisors, the need for advanced preparation in a clinical nursing area, as well as in the functional area of teaching or supervision, is being stressed. Graduate programs are now preparing nurses in the broad areas of maternal-child nursing, medical-surgical nursing, psychiatric nursing or public health nursing. In addition to the need for teachers and supervisors with broad

preparation in one of these areas, it is being recognized that there is a need for nurses with extensive preparation in fields such as cancer nursing, cardiovascular nursing, and neurological nursing, as well as for research in these and other specialized clinical areas. In the past, nurses with special clinical preparation have been used to some extent by public health nursing agencies. Hospitals, however, have seldom made a place for them. The highly expert clinical nurse, with freedom to move freely from one part of the hospital to another and to plan her own time, could do much to help nurses with lesser preparation give expert nursing care. She could also function as a real colleague to physicians. When indicated, she could follow patients from the hospital setting into out-patient and community settings and could work with nurses and physicians in these settings in assuring continuity of nursing care. She could function in nursing education programs as the highly expert teacher.

Although public health nurses are at present better prepared than nurses who function in hospital settings, it is being recognized that, for the future, public health nurses, too, will need broader preparation. In a recent article, Dr. David Rutstein, Professor and Head of the Department of Preventive Medicine of Harvard Medical School, points out that the number of physicians now being prepared for general practice is inadequate (5). Though he believes the best solution would be to increase the number of general practitioners he suggests, as an alternate solution, the upgrading of the public health nurse. He believes that her present training might be buttressed with education in the basic sciences and social service and that it could include principles of midwifery, use of simple drugs, and techniques of minor surgical procedures. He feels that upgrading the

public health nurses might help to rescue the nursing profession from its present plight; that, as routine nursing duties are increasingly assumed by practical nurses or aides, the college-educated nurse might be elevated to true professional status. Although Dr. Rutstein suggests that the upgrading process be focused primarily on the public health nurse, nurses concerned with hospital nursing care feel that the upgrading process is as important for the hospital as for the public health nursing field.

In summarizing the previous discussion it seems to the writers that two types of broadly prepared nurses are needed; one type would have broad general preparation beyond the basic collegiate level in caring for patients of varying age groups with a variety of disease conditions and, in addition, would be prepared to administer and supervise large and complex nursing services which employ nursing personnel trained at varying levels. This person would be responsible for creating a living environment which is therapeutic for patients. She would be expected to understand not only needs of patients of varying ages and socio-economic backgrounds, but also the needs of nursing personnel under her direction. She would know a great deal about human motivation and about how people learn, and would be able to recognize the abilities and potential of each worker, regardless of his educational level. She would be able to plan a teaching program which would help each worker to maximize his own contribution. She would understand the plan of medical care for each patient and would know how to work with physicians and others in implementing the plan. She would have an understanding of community resources for patient care and knowledge of how to work with various community agencies in assuring continuity of care.

The second type of expert nurse would be the clinical specialist who would be deeply trained in a particular area and would participate in patient care, teaching, and research. This person, however, would be relieved of supervisory and administrative functions and would be free to move from place to place to act as a consultant to nursing personnel with lesser preparation than she.

Where are these two kinds of expert nurses to be prepared, and how will physicians, nurses, and other health personnel learn to function in the way that has been described—that of true professional colleagues? It seems logical to suggest that university medical centers with great teaching hospitals and outstanding professional schools of medicine, nursing, and allied disciplines are in an ideal position to promote this kind of learning. It is here that the student physician and nursing student are receiving their basic professional education. In addition to acquiring the knowledge and skills essential to becoming a competent doctor or nurse, the medical and nursing students are also developing concepts concerning one another which are crucial to their future professional relationships. If understanding and acceptance of a truly collaborative relationship between doctor and nurse are seen to be an important outcome of educational programs in medicine and nursing, it is essential that situations be created in which this relationship can be learned and practiced. The medical center and the other agencies with which it is associated must deliberately create the kind of learning climate in which medical and nursing students can see interdisciplinary planning for patient care practiced by their teachers and by the service personnel in the hospitals, clinics, and public health agencies which are used as learning fields. More opportunities should be

provided for medical and nursing students to share classroom instruction, clinical conferences, patient rounds, joint referral of patients to health agencies, and to attend meetings with the many other health disciplines which share in total patient care.

To completely fulfill its educational function, the university medical center must also provide for continuing education of medical and nursing practitioners—particularly those who have left the large teaching center to practice in smaller urban and rural areas. Refresher courses should be planned jointly by medical and nursing personnel in the teaching centers, and the practicing doctor and nurse urged to return periodically to the setting in which they had their initial preparation. Such experiences would not only help them keep abreast of new knowledge in their respective fields, but would also strengthen the collaborative roles which began to be developed during their professional training. Of even greater consequence would be the upgrading of patient care in the smaller hospitals and health agencies.

Our great teaching hospitals and distinguished professional schools must work together to create medical centers which will become the center of education for all who serve the health needs

of people. Medicine and nursing must provide the creative leadership which can bring health care to the high level of which we all dream.

The challenges for both are exciting. The destiny of both is at stake.

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# The Integration of Psychiatric and Psychoanalytic Training at Tulane: A Ten Year Overview; 1950-1960

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An experimental program in medical education in which psychoanalytic training has been completely integrated with the psychiatric residency has been in progress for 10 years (1950-1960) at Tulane University School of Medicine. Training of this type is unique; no other teaching center is set up to carry out completely integrated training in psychiatry and psychoanalysis simultaneously. It was the belief of the authors that the theories of psychoanalysis could contribute considerably to the field of psychiatry and that the scientific development of psychoanalysis could proceed more effectively in the university setting. Accordingly, an experimental program was initiated at Tulane. Because of the nature of the material, an evaluation of the program cannot be precise. We shall, however, incorporate as much objective data as are available in this preliminary report describing and evaluating the program. The program is an ongoing experiment. A more complete evaluation will be possible after a longer passage of time.

Many medical educators have noted with approval the incorporation of psychoanalytic data and theory into the psychiatric residency training (23).

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However, similar incorporation of actual psychoanalytic training with the usual residency program is more controversial. G.A.P. Report #31, "Trends and Issues in Psychiatric Residency Programs," published in March, 1955, summed up this problem as follows:

There is a definite trend toward the assimilation of psychoanalytic training into the psychiatric residency programs. This trend has created new problems for both the residents and the psychiatric educators. The committee notes with concern that the value of alternative possibilities of independent concurrent or integrated psychiatric and psychoanalytic training still rests on inadequately supported personal opinion. Because of this, there is a need for objective, critical examination of what different teachers teach in their various settings, the basic assumptions underlying their teaching, and the effect of their teaching on the learner. Regardless of institutional setting, a dispassionate investigative attitude is urgently needed. (6)

Despite this, as well as other pleas for a dispassionate investigation of alternative methods of training in psychoanalysis (2, 15, 16, 23), we know of no significant new experimentation or change in the *status quo* of psychoanalytic training since this 1955 G.A.P. Report was written. Thus, separate psychoanalytic institutes, apart from established educational centers, remain the usual site of psychoanalytic training. Concomitant training is the next most

popular system. In such a program the residents are allowed time off to undertake psychoanalytic training at institutes which sometimes are as distant as 1,000 or 1,500 miles (6). A third system, tried and abandoned, involved a joint selection system for residents in Chicago hospitals and for psychoanalytic training at the Chicago Psychoanalytic Institute (3). Since the Tulane program is the only one of its kind, we consider it important to present developments in the program during its first 10 years and indicate, where possible, those features which are good, bad, or problematical.

#### SETTING AND HISTORICAL BACKGROUND

The locale and history of the program are important considerations. New Orleans is a cosmopolitan community with a population growth from approximately 600,000 to 900,000 during this 10-year period. It is a large medical center, with two medical schools, Tulane University School of Medicine and Louisiana State University School of Medicine. Prior to 1949, Tulane did not have a separate department of psychiatry. The department of the Louisiana State University School of Medicine was reorganized and expanded in 1951. In 1949 the roster of the Parish (County) Medical Society listed 24 practicing neuropsychiatrists and two psychoanalysts in the New Orleans area. In the preceding year (1948) a psychoanalytic study group had been formed under the auspices of the Washington Psychoanalytic Institute.

The lack of a strong local psychoanalytic hierarchy in 1950 made it easier to experiment with a teaching program which would have been considered heretic in many areas of the country. Many members of the faculty of the Tulane University School of Medicine were familiar with psychoanalytic principles and problems, and they, as well as the University administrators, gave strong

support to the program. During the 10-year period from 1950 to 1960 the number of psychiatrists in New Orleans increased to 78, a threefold increase compared with the national twofold average, and the number of psychoanalysts increased to fourteen. There were, in addition, twenty psychiatrists (approximate figure) in various stages of psychoanalytic training.

Psychoanalytic training, as it has evolved in the United States, is almost completely isolated from medical educational facilities, although psychoanalysts have attempted to identify with the medical profession by requiring, since 1938, that their trainees have M.D. degrees. However, psychoanalysis still has no official specialty (or sub-specialty) status in the sense of an American Specialty Board. The American Psychoanalytic Association, a national professional society, not only has assumed the usual scientific functions as a forum for research and clinical reports, but also has established committees for "accrediting training institutes" and "certifying" graduates of these institutes as "specialists" in an effort to raise and maintain standards of psychoanalytic training (10). "Certifying," as used here, is unofficial, since it is not by a medical organization authorized to carry out this function. As far as we know, this assumption by a scientific society of the privileges and responsibilities usually delegated to medical specialty boards is unique in the field of medicine. A recent attempt to modify this procedure by making psychoanalysis a sub-specialty under the American Board of Psychiatry and Neurology has been rejected, at least temporarily, by the American Psychoanalytic Association and The Academy of Psychoanalysis, the two national psychoanalytic associations. The former organization rejected it because of the fear that it might bring psychoanalytic



training under the domination of medical schools and medical boards; the latter organization rejected it because of the fear that accreditation might be dominated by the American Psychoanalytic Association.

There have been recent historical reviews and critiques on the separation of psychoanalytic and psychiatric training (9, 17, 21). The separation, in part, was due to the rejection by the academic psychiatrists of Freud's theories and observations, a rejection which lasted in most places until World War II. This attitude, in turn, made the psychoanalysts turn their backs on university training centers. However, Freud did not feel there was any basic incompatibility between psychoanalysis and psychiatry as indicated in his statement:

Have you observed anything in the nature of a contradiction between the two (psychiatry and psychoanalysis)? . . . Is not the one rather a supplement to the other? . . . You will admit that there is nothing essentially in the work of psychiatry which would oppose psychoanalytic research . . . Psychoanalysis stands to psychiatry more or less as histology does to anatomy; in one, the outer forms of organs are studied; in the other, the construction of these out of the tissues and constituent elements. It is not easy to conceive of any contradiction between these two fields of study in which the work of the one is continued in the other . . . and, presumably, at a not too distant date, we shall have perceived that there can be no psychiatry which is scientifically radical without a full knowledge of the deep-seated unconscious processes in mental life. (5)

Since World War II, psychiatric educators have realized the important contribution that psychoanalysis can make to the education of the resident in psychiatry. In 1946, Rado pointed out that any curriculum in psychiatry should center around the study of psychodynamics, which represents the organized body of

psychoanalytic findings, complemented by the results obtained through other methods of research (17). In these terms, psychoanalysis is no sub-specialty of psychiatry, but an integral part of psychiatry itself, providing a body of knowledge that was the most complete collection of observations on human motivation. Psychodynamics, as a theory (formulated principally from data gathered with the psychoanalytic technique but also from data collected by other methods), whatever its shortcomings, is the most elaborate and consistent framework for understanding human behavior. Psychoanalysis, as a technique, is not only therapeutic (in selected instances), but a basic research tool for the introspective investigation of human behavior. It is not surprising, then, that the psychoanalytic institutes for a long time provided the only opportunity for a conscientious psychiatrist to obtain competent instruction in psychodynamics and psychotherapy. Another contribution psychoanalytic training made beyond the usual psychiatric residency training program was the emphasis on individual supervision and personal psychoanalysis. However, the separation of psychoanalysis and psychiatric training has often led to divided loyalties, so that frequently a commitment either to organic psychiatry, on the one hand, or to psychodynamic psychiatry, on the other hand, has resulted. In 1948, Rado suggested that this separation of psychoanalytic institutes from medical schools was proving harmful to both sides. He urged that psychoanalytic training be included in the usual residency program, along with the broader clinical experience commonly provided in the hospital and clinic setting (16). When the Department of Psychiatry and Neurology was established at Tulane University School of Medicine in 1949, under the chairmanship of the senior author, such

an integrated program was proposed and was accepted by the Dean and the Executive Faculty of the School of Medicine.

An attempt was made to establish the program in cooperation with established institutes and the American Psychoanalytic Association. An impasse developed immediately when the American Psychoanalytic Association insisted on determining the curriculum, approving faculty members, and screening applicants. The University considered these to be their proper functions, inasmuch as, in its view, the American Psychoanalytic Association had no official educational status. It was decided, therefore, to establish such a program without the cooperation of existing psychoanalytic training facilities, and with the University issuing a certificate in Psychoanalytic Medicine to those candidates who satisfactorily completed their training. This decision led to the resignation of five psychoanalysts on the University's clinical staff. These psychoanalysts, along with the president of the American Psychoanalytic Association, then wrote to the Dean of the School of Medicine, and to the President of the University, stating that the Department of Psychiatry was not maintaining adequate professional standards. The Dean contacted the Council on Medical Education and Hospitals of the American Medical Association asking for an opinion regarding this matter. When informed that the American Psychoanalytic Association had no official sanction for such statements, the Dean, in 1952, again with the approval of the Executive Faculty, reaffirmed the previous permission to establish such a program under the Division of Graduate Medicine of the School of Medicine. Faculty members of the department who applied for membership in the American Psychoanalytic Association were denied membership, although they had been certified as having satisfactorily completed

their psychoanalytic training by the psychoanalytic institutes from which they had graduated and had been recommended for membership in the Association by the faculty of their training institutes. Under usual circumstances, these are the principal requirements for admission to membership in the American Psychoanalytic Association.

It was approximately at this time that the first group of residents began analytic training. With a staff of four full-time psychoanalysts, several part-time psychoanalysts who were to participate in the residency program but not in the psychoanalytic teaching, and five guest lecturers who were psychoanalysts of national repute, the program, based on the principle that psychoanalytic methods and theory should be completely integrated into residency training, was initiated.

#### THE PROGRAM

The principal exercises in the program will be given in summary form, illustrating the manner in which courses, seminars, and supervisory methods of the psychoanalytic institute curriculums have been incorporated into the residency program. (Table I is a listing of the principal courses given in each year of our curriculum.) Our rationale for including the various teaching exercises is presented.

#### Course Work and Seminars

Psychodynamics, based on psychoanalytic theory, is one of the basic sciences of psychiatry; therefore, all residents receive an extensive didactic and seminar course in psychoanalytic theory. With this background, all residents are taught the indications, the contraindications, and the intricacies of various types of psychotherapy. Instruction in their courses also is given by case seminars and didactic teaching.

Since understanding the nature of dreams is most important in understand-

ing unconscious motivation, residents also receive a didactic course in dream interpretation. For good comprehension of psychoanalytic theory, one must see it in historical perspective; therefore, a seminar course in Freudian literature, and another dealing with other major contributors to psychoanalysis, are included as prerequisites for all trainees. In addition, because of the recent contributions of psychoanalysis to the social sciences and vice versa, the curriculum includes seminars in the social sciences.

Although there is an emphasis on the above educational sequence, because of the lack of such teaching in the usual residency programs, it is realized that dynamic psychiatry is only part of the educational background required of psychiatric residents. Therefore, review courses in neuroanatomy, neurophysiology, and biochemistry are given, as well as courses in classical descriptive psychiatry, somatic therapy, and psychology.

#### Personal Psychotherapy

With major emphasis on introspective techniques, the need for self-understanding or increased self-awareness is essential for an understanding of patients' motivations. All residents are therefore encouraged to seek psychoanalytic therapy, or at least psychotherapy, for themselves.

#### Supervision

All residents receive at least 2 hours a week of individual supervision and 4 hours a week of group supervision in the form of case presentations or continuous case seminars. Despite the theoretical advances in the past 50 years, it is realized that much of psychiatry remains an art which can be learned only through such an apprenticeship arrangement.

#### Supervised Experience in the Psychoanalytic Technique

After 1 or 2 years of such training,

TABLE 1  
PRINCIPAL COURSES IN CURRICULUM

FIRST YEAR	
Course	Hours
Faculty Case Presentation	36
Child Psychiatry Case Seminar	18
Neurochemistry Seminar	18
Psychodynamics	48
Psychology for Psychiatrists	15
Case Demonstrations	64
Individual Supervision of Case Work	64
Introductory Techniques of Psychotherapy	32
Rorschach Technique	8
Literature Seminar	30
Intramural Psychiatry	34
Neurophysiology	16
Electroencephalography	10
Neuroanatomy	16
Neurology Staff Conference	36
Hospital Outpatient Clinics	144
SECOND YEAR	
Course	Hours
Faculty Case Presentation	36
Child Psychiatry Case Seminar	18
Neurochemistry Seminar	18
Advanced Psychodynamics	48
Advanced Psychology for Psychiatrists	10
Intake Conference (Adult)	48
Individual Supervision of Case Work	64
Advanced Techniques of Psychotherapy (Dream Interpretation)	32
Reconstructive (i.e., Psychoanalytic) Conference-Elective	80
Reparative (i.e., Brief Psychotherapy) Conference	72
Freud's Writing—Theory and Technique	48
Forensic Psychiatry	9
Neurology Staff Conference	36
Hospital Outpatient Clinics	72
THIRD YEAR	
Course	Hours
Faculty Case Presentation	36
Child Psychiatry Case Seminar	18
Neurochemistry Seminar	18
Concepts of Personality Organization	48
Psychology Tutorial (Elective)	12
Intake Conference (Adult)	48
Supervision of Child Therapy	90
Psychodynamic Development in Children	15
Reconstructive (i.e., Psychoanalytic) Conference-Elective	80
Reparative (i.e., Brief Psychotherapy) Conference	72
Intake Conference (Child)	48
Literature Seminar (Child Psychiatry)	15
Common Psychiatric Conditions in Children	15
Neurology Staff Conference	36
Hospital Consultation Service	72

the resident who has been in personal psychoanalytic therapy for a minimum of 6 months, and who has demonstrated competence and understanding of the psychotherapeutic process in his clinical work, is allowed to take one patient in psychoanalytic therapy for a minimal trial period of 6 months. If approved by his psychoanalytic supervisors, he may continue with his psychoanalytic training.<sup>1</sup>

#### Clinical Training

The theoretical seminars concerned with psychoanalytic medicine, briefly presented, are similar to those offered in psychoanalytic institutes and other post-graduate training centers. Other aspects of our training program are somewhat unique and therefore will be described in greater detail. The most unique aspect of this program is the emphasis placed on out-patient therapy and continuation training beyond the usual 3-year residency program. The training in out-patient therapy begins after 14 months of residency.

a.) *In-patient service.*—The first 14 training months are devoted largely to the understanding and treatment of psychotic disorders. The resident spends the major part of his time with psychiatric in-patients. At this level, out-patient experience is confined to seeing patients in the admitting room of the University teaching hospital and doing follow-up supportive psychotherapy with patients who were discharged from the Hospital in-service. The resident also rotates through the Neurology service for a period of 2 months.

b.) *Out-patient service.*—The adult and child out-patient clinics of the department were established to provide ex-

perience in the practice of intensive psychotherapy. All patients are billed; the fees range from \$.25 to \$5.00 per session. Patients are seen on an appointment basis from 1 to 5 times a week for periods from 3 months to 3 years. The residents are responsible for collecting the fees, which are turned over to the University. The patients come predominantly from Classes II and III (8,12) and are screened carefully in an attempt to eliminate ambulatory schizophrenics (nevertheless, it is our experience that a sufficient number of such patients are undetected in the screening process to give residents experience with this important group). This is done because it is our impression that the chief training difficulty with most university out-patient clinics is the dearth of real neurotics. In the neurotic group, the behavioral disorder is largely the consequence of learning experience in the past life of the individual. It is not complicated by additional factors, as is the case with schizophrenics where unexplained, possibly metabolic, abnormalities alter brain function.

During eleven of the 22 months that the resident spends in the out-patient clinics, half of his time is devoted to the treatment of children and their families. These clinic services have been described elsewhere (11, 12, 14).

#### Continuation Training

In recognition of the fact that 3 years is hardly sufficient time to acquire more than a basic knowledge of psychiatry, the cornerstone of our integrated curriculum became the "Continuation Training Program," which provides for specialized advanced training in one of the following fields: psychoanalysis, neurology, child psychiatry, biochemistry, and neurophysiology. Another significant aspect of the training program is the unified viewpoint of the senior faculty; all

<sup>1</sup> The standards for completion of psychoanalytic training are those generally accepted throughout the country (10). These are subject to modification if indicated by our experience.

accept the fact that inspective or objective techniques, on one hand, and the introspective or subjective methods of investigation, on the other, are completely compatible—being different ways of looking at the same phenomena. It is stressed that the former may prove of greater value in some instances and the latter in other instances. However, both methods used concurrently are necessary for fully understanding human behavior. There is no hesitance in a case conference on a schizophrenic patient to discuss possible biochemical and neurophysiological factors, as well as psychodynamic and social ones. This varied approach reflects the fact that, at the present time, twelve of the fifteen faculty members of professorial rank, who are psychoanalysts or completing psychoanalytic training, have another field of competence in the biological or social sciences.

#### Modifications of the Program

As one might expect in an experimental program, it has been necessary to modify some aspects of the program as requirements arose during the 10-year period. When the program was started, we were convinced that all residents should undergo psychoanalytic training as an integral part of their residency training. This conviction was derived from our concept that an understanding of psychodynamic theory was basic to an understanding of human behavior and that an adequate understanding of psychodynamic theory was possible only with complete psychoanalytic training. However, we soon realized that such an approach was impractical and unnecessary. There were some highly talented trainees whose goals in entering the field were such that complete psychoanalytic training was unnecessary. In some instances, it was apparent that training in areas other than psychoanalysis should be stressed to enable the individual to

fulfill his aims and to develop his maximal potential. For this reason, our original requirement that all residents complete psychoanalytic training was abandoned.

When the program was initiated, it was our belief that we would be able to select candidates, through our screening procedure, who would be satisfactory for psychoanalytic, as well as psychiatric, training. It soon became apparent that our screening procedure, which included a minimum of two extensive personal interviews with senior faculty members and extensive psychological testing, was not a satisfactory method for predicting which candidates would be suitable for psychiatric and/or psychoanalytic training. The screening procedure was successful only in identifying cases of extreme psychopathology. Our experience to date indicates that the best criterion for determining the aptitude of the resident is to observe him in the program—i.e., on the wards and in the clinics—for a minimum period of 1 year. Thus, all appointments to our program are made on a 1-year basis. A similar principle was followed in determining the aptitude of a resident for continuation training and ultimate certification in psychoanalytic medicine. The resident interested in becoming a psychoanalyst is assigned a patient to treat with the psychoanalytic method for a trial period of a minimum of 6 months. To be eligible for this assignment of a trial case, the resident is required to:

1. Complete a minimum of 6 months of personal analysis;
2. Obtain a recommendation from his analyst to the effect that he has evidenced an adequate understanding of his own dynamics;
3. Complete a minimum of 6 months of experience in the satisfactory con-



duct of less intensive psychotherapy with adult clinic patients;

4. Obtain from the supervisors of his clinic cases a recommendation to the effect that he has an adequate understanding of the nature of the psychotherapeutic process.

If the candidate's performance is judged to be satisfactory during the 6-month trial period at psychoanalytic therapy, he is formally accepted into the reconstructive (psychoanalytic) program of the department. In each instance, the resident completes a minimum of 2 years of training in the department before being accepted into the reconstructive program.

The eligibility requirements which we established virtually eliminated the unrealistic magnification of status and prestige surrounding psychoanalysis, as well as the common sibling competitiveness among trainees to prove their worth by being accepted for psychoanalytic training. A number of trainees in the program, having treated a patient in psychoanalysis for the 6-month trial period, decided that this treatment method, in their opinion, did not warrant the extensive training required to become proficient and therefore discontinued psychoanalytic training. On the other hand, all trainees who elected to continue psychoanalytic training at the end of the 6-month trial period now have completed, or are satisfactorily completing, training for certification in psychoanalytic medicine.

The subsequent performance in training of candidates selected by the procedure described indicates that it is an effective screening process. Of the nine candidates who applied and ultimately were accepted for psychoanalytic training in other institutions, four also were acceptable for training in the Tulane program. All four have continued to perform satisfactorily during their sub-

sequent institute training and either have completed their training or are near completion. Three of the remaining five whom we considered unacceptable for training on the basis of poor performance during the trial 6-month period with an assigned case, have discontinued training in the institutes which accepted them. Thus, in only two instances did we predict inaccurately in determining that a trainee would be a poor candidate for psychoanalytic training. In one additional instance, a man whom we considered to be an excellent candidate for psychoanalytic training was dropped from the training institute of his choice. He returned to our program for psychoanalytic training. It is our impression, on the basis of his performance, that our original prediction was correct. Two men who entered the Tulane psychoanalytic program later chose to discontinue training. Both were interested primarily in research rather than certification in psychoanalytic medicine.

#### RESULTS

The evaluation of a training program is difficult, inasmuch as no accurate instrument is available to employ in such an appraisal. Several indicators have been selected in our attempt to evaluate the program. We have extensively appraised the professional activities of our graduates. Other criteria for evaluation included the opinions of faculty members of the School of Medicine, the community response to the program, and the response of the medical student body.

*Activities of graduates.*—During the 10-year period (1950–1960) 100 trainees registered for the psychiatry residency program in the Department of Psychiatry and Neurology of Tulane University School of Medicine. Twenty-seven currently are in the basic 3-year residency training program. Sixty-two resi-



dents have completed psychiatric training in the program, six shifted to other training programs, and five discontinued psychiatric training (Table 2).

It is noteworthy that 48 of the 62 residents undertook psychoanalysis despite the fact that this was not a requirement but only a recommendation of the training program. An additional seven received a less intensive form of psychotherapy. Thus, only seven of the 62 residents completed their psychiatric training without some type of personal therapy (Table 3).

Of the 62 graduates of our basic residency training program, only 29 applied for psychoanalytic training (Table 4). This is in marked contrast to the figures of the Potter-Klein survey which showed that everyone of the 65 residents polled in a community where psychoanalytic training was available wanted such training (15). Our figures may indicate that, when the resident is offered a psychodynamic orientation plus intensive individual supervision, and is encouraged to enter personal psychotherapy as an adjunct to training, fewer will seek formal psychoanalytic training.

The percentage of residents in our program desiring psychoanalytic training has dropped significantly in the last few years. During the last 2 years of this survey (1958-1960), only 20 per cent of the residents applied for psychoanalytic training. During the first 8 years of the program, 50 per cent or more of the resident groups requested psychoanalytic training, and during 1 year 100 per cent entered into continuation training. Whether this trend is peculiar to our program, or a national trend, we cannot determine. It is possible that this is a reflection of as yet undetermined factors such as the selection of candidates.

*Popularity of psychoanalysis as compared with other continuation training*

TABLE 2  
TOTAL REGISTRANTS FOR TULANE  
PSYCHIATRIC RESIDENCY PROGRAM  
1950-1960

	Number
Completed training	62
Shifted training	6
Discontinued training	5
Currently in training	27
Total registrants:	100

TABLE 3  
PERSONAL THERAPY DURING  
BASIC RESIDENCY TRAINING PROGRAM

	Number
Psychoanalysis	48
Psychotherapy	7
No therapy	7
Total graduates:	62

TABLE 4  
PSYCHOANALYTIC TRAINING FOLLOWING  
COMPLETION OF BASIC RESIDENCY  
TRAINING PROGRAM

	Number
Graduates of Tulane psychoanalytic program	18
Graduates of other psychoanalytic programs	6
Graduates who entered, but discontinued psychoanalytic training*	5
Graduates who did not enter psychoanalytic training	33
Total graduates	62

\* Of the five graduates who discontinued psychoanalytic training, two entered the Tulane Psychoanalytic Program, and three entered other psychoanalytic programs.

*programs.*—Several continuation programs, which provide for additional training in a specialized aspect of human behavior, are offered in the department. These have been listed before. The psychoanalytic program has attracted the majority of trainees. In the group of 62 residents who completed basic psychiatric training during the 10-year period, 29 continued in (and 24 completed) psychoanalytic training. Nineteen sought training in other Tulane continuation programs: four in neurology, three in child psychiatry, eleven in research, and one in psychi-

TABLE 5  
 "CONTINUATION TRAINING"  
 (OTHER THAN PSYCHOANALYTIC)  
 FOLLOWING COMPLETION OF BASIC  
 RESIDENCY TRAINING PROGRAM

	Number
Research	11
Neurology	4
Child Psychiatry	3
Psychiatric administration	1
Total:	19

atric administration (Table 5). In view of community needs, the small number of residents who elected child psychiatry training was disappointing. During the 3 years of basic training, each resident had rotated through our children's program (14). Similarly, each resident received training in neurology. These figures, which compare interest in one or another continuation program, may reflect a trend which has ended. Within the last year a much higher percentage of residents are electing continuation programs in child psychiatry and neurology. This new trend has coincided with the reorganization of our child psychiatry program and the addition of new faculty members in both child psychiatry and neurology. The certification of our program by the Specialty Board in Child Psychiatry may also be contributing to this recent trend. Although no conclusions can be drawn at this time, it seems apparent that the orientation, competence, and enthusiasm of the teaching faculty are major factors to be considered in evaluating this trend.

On the basis of the 1960 graduates of our program and those in training at the present time, this trend away from an exclusive interest in psychoanalytic training seems to be even more definite. Several presently are training to become child psychiatrists while others are continuing in training in neurology, hospital psychiatry, or dis-

playing a predominant interest in research. In some instances, the continuation psychoanalytic training is combined with the training in these related areas. As long as all residents have intensive exposure to psychodynamics, as well as individual supervision in prolonged psychotherapy, we feel that such a trend is healthy and more appropriate to community needs.

*Research activities.*—Eighteen trainees actively participated in research projects during their residency years despite a heavy didactic and clinical load. Sixteen have engaged actively in research following completion of their training. Four others have taken positions as full-time research psychiatrists; this is a relatively large contribution when one considers the small number of research psychiatrists in the country. The continuing research interest of the graduates undoubtedly reflects the emphasis placed on research in the Department (Table 6).

Graduates of the training program have developed interests in addition to those outlined in Table 6. For example, three have pursued special training in treatment of alcoholics, several others in group psychotherapy, two in adolescent delinquency, and two in legal psychiatry.

*Professional activities of graduates.*—The demand for psychiatrists in this community has continued. The new graduate entering private practice has been able to earn \$20,000 to \$30,000 during his first year. Eight of our 62 graduates entered full-time private practice; twenty of the 62 are in part-time private practice (Table 7). The broad range of treatment methods employed by the graduates in private practice is of interest. Our graduates do not fall into either the "directive organic" category or the "analytic-psychodynamic" category, as defined by

Maciver and Redlich (13). Instead, they merge the two approaches. Treatment emphasis is on interpersonal therapy, or psychotherapy, i.e., achieving an understanding of the patient in psychodynamic terms. In conjunction with psychotherapy, any somatic therapies which can be of value in treatment, including the administration of psychopharmacological agents and electroshock treatments, are employed. They also work with patients in the hospital and visit the home when indicated.

Despite the monetary rewards of private practice, thirteen graduates have continued in hospital psychiatry, and nineteen graduates are salaried teachers (fourteen in the Tulane Department and five elsewhere) (Table 7). Although this program has been in operation for only 10 years, two graduates have been appointed chairmen of departments of psychiatry in major medical schools, and one graduate is an Assistant Dean. The large percentage of graduates who elected to work in public hospitals probably is due, in part, to the active collaboration which exists between the Tulane department and the Louisiana State Department of Hospitals. The university conducts training programs in a number of the state facilities.

*Some comparisons with training programs of psychoanalytic institutes.*—Recently, a survey of training programs of the psychoanalytic institutes affiliated with the American Psychoanalytic Association was published (10). The data compiled in the survey have been useful to us in evaluating our program.

A review of our experience indicates that twenty graduates of our basic 3-year psychiatric program entered into psychoanalytic training at Tulane; two later discontinued training. Of the nine who sought psychoanalytic training in institutes (six in New Orleans and

TABLE 6  
RESEARCH ACTIVITIES DURING AND  
FOLLOWING BASIC RESIDENCY TRAINING  
PROGRAM

	Number
Active participation during training	18
Part-time research upon completion of training	4
Full-time research upon completion of training	16

TABLE 7  
PROFESSIONAL ACTIVITIES OF THE GRADUATES  
OF THE TULANE PSYCHIATRIC RESIDENCY  
PROGRAM

	Number
Private practice only	8
Private practice with clinical teaching	15
Private practice with minimal community activities	5
Full-time salaried teaching	11
Part-time salaried teaching	8
Gratis clinical teaching	4
Full-time public hospital psychiatry	10
Part-time public hospital psychiatry	3
Community clinics	11

three in other cities), three later discontinued. During the initial years of our program, trainees frequently sought psychoanalytic training elsewhere. There has been no demand for outside training in recent years. It thus would appear that, even though psychoanalytic training historically has been conducted in the institutes and that the accompanying membership in the American Psychoanalytic Association is thought to carry considerable status, the university program has proved to be more than equally attractive to our trainees and has become progressively more attractive as our program has continued.

A review of our experience in relation to institute training points up the relationship between the interests of the analyst and the preferences of the trainee. An often voiced criticism of psychoanalytic therapy is that the trainee is "brain washed" and left in bondage with his analyst. We found this to be only partly true. It, obviously, depends to a large extent upon the degree to

which a psychoanalyst allows his personal attitudes to intrude into the treatment setting. Several analysts shifted their allegiance from the Tulane program to established institutes during the course of the 10 years. Our data show that, if the analysand of one of the analysts had completed his therapy before selecting psychoanalytic training, he acted independently in his choice. If the analysand was still in therapy, however, he shifted his allegiance with his analyst.

The age of the graduate at completion of training in the University program is lower than that of the graduate of the independent psychoanalytic institute. The average age at which our graduates completed training was 35.0, whereas the average age of the institute graduate was 39.3 years (10).

The integrated university program is much less costly to the trainee as compared with the cost of institute training. In the Tulane program, the only cost to the trainee is for his personal analysis, and all psychoanalysts in the program have voluntarily agreed to keep the fees for the trainee low. In addition, a loan fund has been established in the University to help trainees finance their personal analysis. These funds are paid back gradually, and without interest, after the resident has completed training. In contrast, the average cost for institute training is estimated to be \$19,200 (10). It is our impression that this high cost of training forces many of the institute trainees into full-time private practice.

The percentage of our graduates pursuing research and teaching activities was much higher than that of the institutes. In appraising the research and teaching activities of our trainees, we noted that, of the nine who sought psychoanalytic training elsewhere, three discontinued all activities except

private practice, whereas all the Tulane psychoanalytic trainees have continued their teaching and research activities without interruption.

*Community response.*—Community response to a project of this sort is difficult to evaluate objectively. There is a large demand for admission to the Clinic from the principal social agencies. Such intangible indicators of the Clinic's value to the community are supported by a number of indirect observations which strongly suggest that this experiment in medical education is proving successful. An appraisal of the low drop-out rate and a review of the patient make-up of the Psychiatric Resident Clinic of the Department are revealing in this regard (12). In our Clinic, the drop-out rate is only 6 per cent, as compared with an average 50 per cent drop-out rate in similar university clinics, surveyed by Rosenthal and Frank (19). The majority of patients selected for the Tulane Clinic fall into Class II and Class III of Hollingshead's and Redlich's "index of social position" (8), and have a high level of education. Forty-nine per cent of the patient population of the Clinic have completed or are registered for graduate school; 13 per cent were college graduates; 20 per cent have had some college education. These data concerning drop-out rate and "social position" of the patients suggest that the Clinic has served a worth-while function and has been well accepted throughout the university and in the community at large. In considering differences between the Tulane Clinic and similar clinics, the integrated psychoanalytic training is one variable and, we think, an important one, although this would be difficult to prove, since there are other differences between our Clinic and those surveyed in the Rosenthal and Frank report (19). In our

opinion, having this superior type of clinic population is of the greatest importance in training in "intensive psychotherapy."

*Medical faculty response.*—Here, too, a direct measurement of medical faculty response to the program is not possible. We are dependent upon indirect indicators. At no time has there been adverse criticism from those faculty groups of the university responsible for the over-all educational policies of the School. The Committee on Graduate Medicine and the Curriculum Committee have wholeheartedly supported this experiment. All recommendations by the faculty of the department for certification of trainees in psychoanalytic medicine have been approved without question. The Division of Graduate Medicine has been particularly tolerant when special considerations were requested because of the unique nature of this program in comparison to the more conventional graduate programs in the School of Medicine. Above all, the often voiced fears of the more conservative psychoanalysts to the effect that medical educators would interfere and thereby somehow dilute or "water down" the psychoanalytic program and weaken the "movement" have not materialized. In the course of the 10 years that this program has been in operation, there has been increasing acceptance of the psychoanalytic approach as a scientific method in clinical medicine. Interdepartmental conferences in which psychoanalytic data are included as a part of the medical work-up have increased in frequency.

#### DISCUSSION

*Role of the analyst in the integrated program.*—In the medical school setting and, particularly, with a new program, it was inevitable that the faculty member would assume a variety of roles—

analyst, teacher, administrator. It was emphasized in the literature that psychoanalytic treatment is complicated by the analyst's functioning in a dual role. Recently, there has been increasing evidence of the importance of relating personal psychoanalysis to current realities, particularly if it is to constitute a successful treatment method (1, 18). Evidence is accumulating to show that the more orthodox psychoanalytic techniques, with the analyst acting somewhat as a blank screen, is of lesser therapeutic value. Our experiences suggest that frequently the resident who seeks an analyst who is only peripherally active in the program is unconsciously motivated to do so as a defense against looking into his own pathology. The analysis thus may become a method for perpetuating the analysand's neurotic or maladaptive behavioral patterns. In a program where the analyst is more cognizant of his patient's daily performance and particularly, in this context, his neurotic acting-out, the therapeutic analysis progresses more rapidly. Even though the potentials for more effective therapy are present in this setting, so, too, are opportunities for the development of complications. We have effectively minimized complications which develop from this situation. It is imperative that the chairman of the department, who has ultimate administrative authority, not analyze residents based in facilities which he directly administers. On one occasion when such a treatment relationship was attempted, we found that it needlessly complicated the transference relationship. As our program evolved and the staff became sufficiently large, it was possible to arrange the program so that the analyst was rarely in an administrative role with his analysand. Inevitably, however, there were times when an analyst functioned as teacher

of his analysand in lectures and conferences. This did not prove to be a serious incapacitating factor insofar as the role of teacher in our program does not usually include giving examinations and awarding grades. We found it desirable to clearly delineate the role of the analyst at the start of therapy, advising the analysand that his analyst would not take part in administrative decisions regarding his training. Because the decisive factor in the acceptance of a candidate for psychoanalytic training was his conduct of the case assigned during the 6-month trial period, it was the candidate's case supervisor who was primarily responsible for the decision—thus making it unnecessary for the analyst to play a primary role in the selection. In this arrangement, the analyst's contribution was limited to a statement as to whether or not the candidate possessed an adequate ability to introspect. The analyst did not take part in the decision regarding acceptance of the analysand for psychoanalytic training, and this tended to enhance the therapeutic role of the analyst (a point recently emphasized by Szasz [20]).

*Revisions resulting from experiences.*

—During the short period when complete psychoanalytic training was a requisite for all trainees, they often used the fact that they were coerced to enter personal treatment as a form of resistance in the treatment situation. When the complete psychoanalytic training with personal analysis was changed from a program requirement to a recommendation, nearly all the residents still entered into personal therapy; but this form of resistance was eliminated. No criteria have been established as to the length of psychoanalysis for our trainees. Despite this, the length of analysis has proved to be in the same range—i.e., 300–700 hours

—as that for trainees in psychoanalytic institutes.

We currently are designing a research study aimed at determining the benefits which the relatively healthy trainee would obtain from personal therapy. As a corollary to this study, we will investigate the possibility of shortening personal analysis.

In all the continuation programs offered by the department there has been a gradual shift in emphasis over the last 10 years from didactic courses to seminar, reading, and discussion groups. This is a deliberate attempt to pattern the teaching more along lines of other graduate programs of the university. The student in continuation training assumes much of the initiative and responsibility in organizing and conducting advanced seminars, with faculty members available as resource persons. All advanced trainees can participate, to varying degrees, in the continuation program in psychoanalytic medicine. A unique aspect of our program has been to encourage selected trainees who are pursuing continuation training in research to undertake the treatment of one or two patients with the psychoanalytic methods. We reasoned that utilization of the technique of reported introspection would be a valuable supplement to other research methods. Three trainees followed such a plan; all now are in full-time teaching and research positions. No one who has taken part in this modified program, integrating research with experience in some aspects of psychoanalytic medicine, has discarded research for clinical psychoanalytic practice.

*Faculty responses to the integrated program.*—The psychoanalytically trained faculty members in our own program have responded to the evolution of this program in interesting and varied ways. At the time the program was



initiated, all the psychoanalysts on the faculty approved, in principle, the idea of moving the teaching of psychoanalysis into the psychiatric residency program. Conflicts later developed within the teaching faculty concerning the extent to which this integration should be carried. This occurred when criticism of this idea began to be expressed by the authorities of the American Psychoanalytic Association whose established policy was that, to win approval, all psychoanalytic training should be conducted in their affiliated institutes. Conflicting opinions of psychoanalysts outside the program contributed to this dissension.

When the decision was made to proceed with the fully integrated program despite severe criticism by the American Psychoanalytic Association, five psychoanalysts immediately resigned from the faculty. Considerable feeling was associated with this development. One member of this group was very much in conflict concerning his resignation. Although there was considerable pressure from the local psychoanalytic study group, of which he was a co-founder, approximately 1 year later he requested reappointment to the faculty, and this was approved by the Committee on Personnel and the Executive Faculty of the School of Medicine. One psychoanalyst who remained in his position as a full-time faculty member after this episode expressed increasing doubt about his role in the program. He believed that his security and interests were more with the conventional psychoanalytic program than with medical education. Continuing his primary role as a medical educator became increasingly difficult, and he ultimately submitted his resignation in order to devote himself to private practice and the local psychoanalytic institute training program.

The attitude of the authors, all psy-

choanalytically trained, has undergone interesting changes. As stated earlier, all initially received the institute type of training. They, therefore, considered psychoanalysis as the major feature in the training program. Experience modified their position. Recognition of the over-all community needs for psychiatric service, the need for evolving more effective therapeutic techniques in the treatment of behavioral disorders, and the need for a more thorough and comprehensive investigation of the nature of the psychotherapeutic process have been the principal features responsible for this change in attitude. They, however, have never lost sight of the importance of psychoanalysis as a research technique and as a primary source of psychological information.

In the last few years, several graduates who had received their psychoanalytic training in the program were added to the faculty of the department; others, who had received their psychoanalytic training in institutes, have entered the program fully cognizant of the orientation of our program. Conflicting views within the faculty concerning the place of psychoanalytic training have now been eliminated. This change in faculty attitude is reflected in the conflict-free attitude of the trainees.

*Changing concepts of the relationship of psychoanalysis to psychiatry resulting from this program.*—From our experience and from comments in the literature (15), it is apparent that the desire for training in psychoanalysis among psychiatric residents is far out of proportion to social needs, particularly when one considers the shortage of psychiatric educators, administrators, hospital physicians, and research investigators. Even if one rules out the economic limitations of psychoanalytic

therapy, as well as the time involved, our experience indicates that only 4 per cent of 1,050 applicants to our outpatient clinic, coming almost entirely from classes II and III, were suitable subjects for treatment with the psychoanalytic method (11, 12). Despite the decreased interest in psychoanalytic training among our residents, when compared with the findings of Potter and Klein (15), a disproportionate interest in such training still remains. This is suggested by the following figures: 29 of the 62 trainees who completed basic psychiatric training in our program elected continuation training in psychoanalysis, whereas nineteen continued training in other fields (Tables 4 and 5). Yet the trend suggesting diminished interest in exclusively psychoanalytic training is apparent. This trend seems to be continuing; for example, at the present time there are 30 trainees registered in our program. Of this group, only three currently are working toward formal certification in psychoanalytic medicine; four others are being considered for psychoanalytic training. Several are employing the psychoanalytic technique in their treatment of at least one patient. None of our current trainees intend to limit their practice to psychoanalysis, and none plan to enter training in psychoanalytic institutes. In our current group of trainees, there are as many planning to pursue extension training in the fields of child psychiatry, research, and neurology, as there are planning to enter psychoanalytic medicine; there are more planning to enter the fields of academic medicine and institutional psychiatry than are planning to enter the private practice of psychiatry.

By providing a psychodynamic didactic program and assuring extensive supervision of intensively treated patients of all residents, we have found that the

prestige and glamour of being a psychoanalyst are reduced. It is our impression that this recent trend, with fewer of our residents seeking advanced training in psychoanalysis and more electing continuation training in other areas, is a result of de-emphasis by the faculty. Should this trend continue, psychoanalysis will, as Freud suggested, become the "histology" of psychiatry. Currently, on the basis of our experience, it is our impression that psychoanalysis has definite but limited usefulness as a treatment method in psychiatry. On the other hand, it is a very effective technique for research, especially when employed in conjunction with other methods for studying behavior. Similarly, it has proved valuable as a training method. Our experience thus would indicate that the psychoanalytic technique will be of maximal value as an adjunct in the training of future psychiatrists, and as a research technique. Its use, as a marketable item, by the practicing psychiatrist will be limited. Nevertheless, a thorough understanding of psychodynamics constitutes a foundation for the understanding of all psychotherapies. The practicing psychiatrist who has gained this basic understanding through psychoanalytic training will be in a position to offer an eclectic psychotherapy and, thus, more effectively meet the community needs for psychiatric treatment. This trend, whereby psychoanalysis is becoming one of the integral basic methods contributing to our knowledge of human behavior, is nullifying the need to consider psychoanalysis as a distinct subspecialty of psychiatry. Such a consideration, in our opinion, only establishes an unwise precedent in giving one specific psychiatric therapy an undeserved exalted status.

On the basis of our experience, we believe that incorporation of psychoanalytic training into the university cur-

riculum provides a setting where this type of training can make its maximal contribution. Psychoanalytic theories can be tested through the techniques of other disciplines. Other specialties can profit as well by the use of psychoanalytic techniques and concepts. Through principles of sound scientific methodology, that which is valid in psychoanalysis can be retained and that which is invalid can be discarded. In science there is no place for the defense of a faith.

#### SUMMARY

We have described an experiment in medical education in a university setting whereby psychoanalytic training is completely integrated with residency training in psychiatry. The difficulties encountered in establishing such a program and the tentative results which have evolved during the 10 years of the experiment are presented. Data gathered thus far suggest that such a program is not only feasible, but that it may offer a number of advantages. It develops a broader base for the understanding of pathology of behavior, thereby providing a foundation for the development of all psychotherapeutic techniques. (The value of psychoanalysis as a treatment has proved to be limited when evaluated in the context of over-all community needs in psychiatry.) The program also serves to increase the interest of residents in research, teaching, hospital administration, and in diverse fields of human behavior. Psychoanalysis serves as a basic science, the knowledge of which enhances understanding of all areas of psychiatry.

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# Intermediary Magnification in the Study of Morphology

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## INTRODUCTION

Originally, anatomy and pathology depended entirely upon gross observation. With the introduction of histological staining techniques, the microscopic study of normal and diseased tissues first extended and then superseded gross examination. Greater magnification and higher resolution have been sought since. Magnification has been extended by better lenses and illumination techniques, and recently by the electron microscope.

Much of the art of pathology is to be found in the application of gross observation at the autopsy table and the surgical bench. Fewer pathologists today use the hand lens for obtaining a simple low-power magnification of gross material. Something is lost in this failure. The study of morbid anatomy should not be limited to the naked eye examination and the sudden jump to magnifications at the level of the light or the electron microscope. There exist informative intermediary ranges of magnification.

## PRACTICAL APPLICATIONS

For the student particularly there exists a gap, in his study of histology and pathology, between the naked eye examination and the present usual single-plane one-dimensional microscopic picture of the paraffin or frozen section.

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This intermediary range can be exploited further and should be stressed in our teaching and residency training programs. Simple instrumentation now available brings these ranges readily into the realm of reality. The ordinary hand lens, simple or compound, is useful if good light is at hand for the examination of the surface and the cut plane of both fresh and fixed tissues. The ordinary flashlight with attached magnifier makes adequate light available with a single, fixed, focal length lens, and is useful for a low range of magnification.

Recent developments in miniaturization in industry have given us an optical instrument<sup>1</sup> which utilizes an adequate cold light source (the standard fluorescent 22-watt white circular light) with a built-in full 5-inch diameter achromatic and aplanatic magnification system which, in the lower magnifications of 2.5 $\times$  and 3.5 $\times$  is fully binocular. With the magnification of 2.5 $\times$  the working distance is approximately 14 inches. The addition of an achromatic lens and a swing-in magnification-multiplier permits a four-magnification system, i.e., 2.5 $\times$ , 5 $\times$ , 3.5 $\times$ , and 7 $\times$ . The lens is so large as to accommodate both eyes, thus allowing complete mobility for the observer. It does not require fixation

<sup>1</sup> The Macroscope manufactured by the Ednalite Research Corp., Peekskill, N. Y., U.S.A.

of each eye to a separate eye piece. The instrument allows both hands to be free for manipulation of the instrument and is ideal for final dissection and selection of material for microscopic study at the surgical bench and in the autopsy room. As against the common single lens magnifier with its inherent disadvantages, the achromatic lens system in this instrument gives a clear, sharp, color-fringe-free image. The system is also aplanatic, yielding a flat field, especially in the lower ranges, where surgical manipulation with instruments may be desirable. A camera mount is also available for macrophotography, for the standard 35-mm. reflex camera. Also, a cold light-base illuminator is available for "underneath" lighting, with translucent or transparent tissues and thin sections of other materials. A U-V lamp can be substituted for the white light.

Cutting fresh and fixed tissues in thin slabs permits their examination by incident or transmitted light, or both, and reveals a new dimension in depth.

The low-power binocular stereoscopic microscope, with multiple par focal objectives, yields a steplike sequence of increasing magnification. This has recently been extended by the development of such a microscope with a zoom objective lens. The study of such thin sections of tissue gives a meaningful and instructive stereoscopic picture in three dimensions. Such thin slices of fixed tissues can be preserved permanently in Mylar bag mounts for classroom use (2).

#### DISCUSSION

In our concentration on the finer structure of normal and abnormal tissue, careful gross examination of fresh and fixed tissue has been neglected. As a result, skill in the field of gross pathology is being lost by the dependence on microscopic slide preparations. The fro-

zen section is utilized extensively in the study and diagnosis of tissue and does yield an excellent opportunity for correlation of the over-all gross picture with the microscopic changes. For the study of fresh material at levels corresponding to the ordinary microscope, the episcopes and the phase microscope are now available.

The electron microscope represents the equivalent of the study of the plastids of the leaf; the ordinary microscope yields the image of the veins of the leaf of the tree; however, the equivalent of the whole tree and the forest, in proper relation and *in toto*, can only be encompassed by the naked eye and lower magnifications. An understanding of the pathological process in summation is obtained by study with the naked eye and low intermediate ranges of magnification. This can be done with adequate lighting, with the use of the low-power stereoscopic instrumentation now available. A better comprehension of the total biological aspects of disease follows.

#### CONCLUSION

Clinical correlation is often linked to the gross changes in diseases more characteristically than to the demonstrable microscopic findings. Additional meaning is added to higher magnification in pathology by its proper orientation to gross distortions, as revealed by the low-power intermediary three-dimensional image.

The combination of the application of low-power, three-dimensional magnifications, with good lighting and the utilization of thin slices of tissue, offers a unique opportunity to study structure and to depict the total biology of tissue response in disease.

The utilization of low-power magnification in studies of unprocessed natural and fixed tissues, with or without staining, places gross observations in its proper perspective in the study of dis-



eased tissue, and can help to restore the art of gross pathology to its due importance in pathology. Such studies help in the understanding of disease and improve clinical and pathological correlation. Students have found this range of magnification an exciting experience.

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# The Influence of Teaching and Research on Hospital Costs from the Viewpoint of a Medical Educator

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In any discussion of the cost of patient care, it has been customary to refer principally to the *per diem* cost of hospitalization rather than to the ultimate cost of patient care to the community. There are many respects in which a high *per diem* cost may be associated with a lower ultimate cost in the community. For example, when the work-up of patients is quick and efficient, the *per diem* cost is high because the details of the work are compressed into a shorter period of time. When the work-up is slow and dilatory, the *per diem* cost is lower, but the ultimate cost is higher. With this general concept in mind a number of pertinent observations may be made.

A special aspect of the problem relates to the care of indigent patients. There is increasing evidence that it costs more to care for indigent patients per day, in many general hospitals, than it costs to care for private patients. To some extent this may be owing to the fact that fewer indigent patients are admitted for rest cures or diagnostic work-ups than is true of semi-private or private patients. In many instances prolonged hospitalization is easier on private wards than on wards for the indigent patients because private patients

have more adequate financial resources. Furthermore, the house staff does not have as much to say about the duration of hospitalization of private patients in many institutions. By and large the house staff is anxious to move patients rapidly. In our city it has been found that in private wards single males remain in the hospital 2 or 3 days longer than single females. This is not true on wards for indigent patients. It is true that less expensive construction may be used in hospitals for indigent patients, but this is not generally mirrored in the *per diem* cost. Although the *per diem* may be high for a number of these reasons and others to be mentioned subsequently, the indigent patient gets much free professional medical care, and, because it is received from house staff who are on salaries, it actually tends to increase the *per diem* cost without making it clear that the total medical cost to the community is very much lower. It should be pointed out in this connection that, in any general hospital where indigent patients are cared for, the hospital is often not reimbursed at full cost by the welfare agencies involved. This will mean that extra charges must be loaded on the private patient bill so that what the private patient pays may be considerably in excess of what it costs to care for him, so that billings do not reveal the true situation.

*Reasons for higher per diem in teaching hospitals.*—Teaching hospitals often

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have more indigent patients proportionately, and because the house officer is responsible in many instances for their admission it develops that such patients must be sicker and more complex before they are able to get into the hospital. They are more often incontinent, immobile, and unconscious. They are often bed-bound. They take more nurses (in our institution 15 per cent more nursing time). They require more social service (in our institution 4 times as much social service as do other patients). The house staff in teaching hospitals is often occupied with matters other than just patient care. In fact, the most desirable internships have a strong focus on education, and often the time is spent in the teaching of medical students and nursing students, and they may spend months away from the established schedule on wards for special educational experience. This results in the needs for a larger house staff for a given number of patients with an evident increase in cost. However, these desirable internships generally pay very small stipends which to some extent offset this additional cost.

Most teaching hospitals feel it essential to have the full spectrum of patient service, including a large emergency division, a large out-patient department, an active pediatric service, all of which are expensive services—particularly when the payment for services in the out-patient department and the emergency wards are by and large far below cost. In many communities the emergency ward of the large teaching hospital represents a place where any transient or indigent patient may receive attention, and in many instances there is no anticipation of paying any part of the bill. In our hospital about 50 per cent of bills are not collected. Furthermore, teaching hospitals embark on new fields more rapidly than other institu-

tions and so add to the ancillary cost of hospital care.

By and large more tests are done on all patients in teaching hospitals. It is not clear, however, whether these are made needlessly. It is my own opinion that in most community hospitals there is far too little use made of special tests for following the course of a patient's illness. It is perfectly clear that research projects should be financed from other funds, and today it is not generally difficult to find such funds. However, ways have not been found in most university hospitals to reimburse the hospital for the extra cost of research activity, including the collection of 24-hour urines and like exercises.

There is one situation in which the risk of doing tests unnecessarily is quite evident, and that is when a point of view exists that, because it is a teaching institution, many tests need to be done just so that young physicians know what happens to a given test in a given disease. From my point of view this is not a valid argument. I think it would be most instructive if residents sometime during the course of their training take part in a carefully planned clinical trial; but they are more likely to be misled by isolated pieces of information than enriched by it.

In most teaching hospitals there is more wear and tear on the personnel generally, especially the head nurses on the ward services. There is more nursing personnel needed for the sicker patients, there are more students—both medical and nursing—about for more hours of the day, and the net result is that more personnel is needed to cope with it, in all likelihood. Furthermore, it is clear that different kinds of nurses are found in teaching hospitals than in community hospitals. In a recent study made at Strong Memorial Hospital it was found that, compared with other general

hospitals in the community, our nurses were on the average 10 years younger, more than twice as many were single, and the average duration of employment was only half that in the other hospitals. It was also apparent that they worked at this hospital for different reasons. They did not regard it as long-range employment or as a source of financial security but rather as an opportunity for advancing their knowledge of medicine, their clinical competence, and their opportunity for appropriate social contacts.

There are evidently a number of such reasons why the *per diem* cost of hospitalization may be greater in a teaching hospital. Because of this not only has there been in the past a tendency to assume that patient care is more expensive under these circumstances, but there seems to have been even an unconscious implication that the ultimate cost to the community is greater. The natural result of such a belief is an effort to get the expenses back in line with those of other hospitals. There are many hospital administrators who regard a high *per diem* as an evidence for their administrative incompetence, and it is not difficult under such circumstances for hostilities to develop toward those aspects of the hospital costs connected with the educational program. Often under those circumstances such administrators regard the teaching program as an evil and dangerous influence in his hospital. It is therefore important to recognize that, in spite of certain additional costs, the community benefits greatly, even in the strict dollars and cents terms.

*Ultimate costs are less in teaching hospitals.*—In many university hospitals, the length of hospitalization may be somewhat longer in the ward services. These statistics are misleading, however, because it is the impression of

many clinicians that the patients differ in character in the two situations, and, as mentioned above, patients on the ward services are often sicker on the average. We badly need to develop techniques of evaluating the degree of illness and intensity of patient care. When these have been developed satisfactorily I am confident that it will become clear that the same kind of patient stays in the hospital for a shorter period in a ward service than on a private service. I think this is owing primarily to the fact that the house staff wants a rapid turnover for their own interest, and, second, it is likely to be true because in a teaching hospital, as contrasted with the community hospital, the chief of service has a much more effective line of disciplinary control of the staff. This results in less unnecessary hospitalization (though a higher *per diem*). When appropriate studies are made it seems certain that, in a community where professional members of the staff share appointments with a university hospital and with community hospitals, unnecessary hospitalization by the same doctor will be greater at the community hospital because of the issue of discipline alone.

The ultimate costs are also lower in teaching hospitals, I believe, because the cost of professional care is at a much lower rate. In most teaching hospitals multiple consultations from special units are obtained at no cost to the institution itself, much of this care being provided by fellows and junior staff men who receive their income from other sources. It is true that the cost of professional care provided by the house staff is generally added to the Blue Cross cost, but the saving to the Blue Shield and the ultimate savings to the community are great. It is my opinion that the care of patients in a teaching hospital is likely to be more definitive with fewer

later admissions. It is probable that more attention is paid to the rehabilitation of patients and their being relocated in jobs or in situations where they can care for themselves.

Although some drugs may be used in teaching hospitals that are not commonly used in community hospitals, it is evident as Dr. Meyer has shown earlier today that in teaching hospitals fewer antibiotics are used and the net drug cost is less. Complicated surgical cases such as open heart surgery add greatly to the cost of operating the hospital on a *per diem* basis; but in teaching hospitals few of the members of the surgical team are paid any salary except the salary of an intern or resident. If these cases were done under circumstances where all members of the surgical team receive ordinary surgical stipends the cost would be very great indeed. It is also common in many teaching hospitals to pay the anesthesiologist, radiologist, and pathologist by salary. This cost is then included in the *per diem*, but again there is much saving to the Blue Shield program or to the patient when charged individual fees.

*Ultimate costs higher due to teaching hospitals.*—There is a single situation that especially is involved under this heading. Some years ago in another university hospital I had the opportunity of making a study of some proposed increases in the stipend of house staff. We were interested in observing which members of the senior staff were in favor of increasing house officers' stipends and which were not in favor of it. A surprising result was obtained in that those members of the professional staff who were making very large incomes were on the whole against increasing interns' stipends, whereas those members of the professional staff making modest incomes were enthusiastically in favor of increasing intern stipends.

At first glance this would seem to be quite contrary to expectations. My explanation for it is quite simple. I believe that they felt guilty in charging such large fees, but that, in observing the impecunious resident or their young assistants, they could see how lack of income produced great difficulties. They could then project themselves into this role because of their own past experience and justify their current high fees. This situation however, is one of the very few I can think of in which the ultimate cost to the community is higher in teaching hospitals. In community hospitals the stipend to resident staff is often sufficiently sizable that the sense of being persecuted is not nearly so fully developed.

The development of teaching hospitals in the future in regard to their costs is evident in some respects. Such hospitals must continue with a broad and generally complete spectrum of medical services, and this is expensive. Such hospitals must continue to care for indigent patients, and this expense, when calculated as *per diem*, will continue to be higher than that for other patients. If third parties provide payment for the costs of hospitalization for patients who in the past would be regarded as indigent and cared for on ward services, there may continue to be decreasing numbers of patients for whom resident staff may have the major responsibility. Great care must be taken to retain such a group of patients either by agreement with private physicians or by means of contractual arrangements with organizations whereby medical care may be provided by resident staff with appropriate responsibility. It is also clear that it is morally indefensible to charge private patients for the cost of indigent patients, and either voluntary community agencies such as Community Chest drives or government agen-

cies such as local welfare departments must assume the full cost of providing medical care for the indigent and the medically indigent.

Because of inevitably higher cost on a *per diem* basis, teaching hospitals must beware of administrators who are melancholy if their *per diem* is higher than that of community hospitals—for, in their anxiety to keep the *per diem* low, they may reject extensive services which are essential to the teaching program such as pediatric services, out-patient departments, and emergency wards; or, if they do not reject them outright, they may discourage development of such programs where some of the most effective teaching can be done. Administrators must be found who not only organize well and run institutions economically but who are interested in the quality of care and of teaching and who are eager to experiment with new techniques. Furthermore, the clinical chiefs in hospitals must feel responsible for the economy of the hospital, and this must be passed on to students and to the resi-

dent staff. Although it is my belief that the ultimate cost is lower than in other hospitals, even if it were higher one could defend the position that someone must pay for the costs of adequate programs and someone must provide the opportunity for young physicians to assume responsibility stepwise, if they are to be safe practitioners in the community.

*Conclusion.*—Although a number of reasons exist for the *per diem* cost of teaching hospitals to be higher than the *per diem* costs of the community hospitals, it is likely that the ultimate cost to the community of patient care in teaching hospitals or resulting from medical care in teaching hospitals is less than when care is provided in community hospitals. There is need to document these differences and the reasons for it. There is a most pressing need for methods of evaluating the degree of illness in patients and the quality of medical care so that this lower ultimate cost to the community can be made clear to professional and lay people alike.



## Comments on the Functions of a University

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Each of you, I feel sure, has a preferred way of defining the term "university," and I know that each of you has your own understanding of what are generally accepted functions of such a place. We all agree, I think, that a university is ideally a "community of scholars," all active in an atmosphere of intellectual excitement that inspires in these men and women the desire to exert to their utmost their talents and abilities, whether these lie in the direction of teaching or in the direction of research and the quest for knowledge or both.

We will agree, too, I believe, that such a university's functions should include the preservation of knowledge through its libraries, archives, and museums; the transmission of knowledge from teacher to student in the classrooms and laboratories; the creation or extension of knowledge through basic and applied research at various levels; and service to its community through a combination of these other functions, or perhaps in special ways.

However, I feel that there is much confusion at the present time about the proper relationship of these functions in an American university. Determining the optimum relationships can be most difficult, since a university is indeed a complex institution of higher intellectual activity and learning. At once, it must educate youth and prepare them for meaningful roles as scholars, scientists, and men of public affairs; it must provide an atmosphere that encourages the further explorations of scholars and sci-

entists into new and challenging areas; and it must serve the general public in any way appropriate to the relationship of a scholar and scientist to the community and society as a whole.

Several months ago, I found occasion to comment on some aspects of integrity concerning our institutions of higher learning. At that time, I ventured the opinion that integrity is the indispensable element of greatness, that without integrity no educational institution, no matter how large or how wealthy, can ever hope to achieve greatness. In my remarks on integrity and on some of the threats to the integrity of our colleges and universities today, I referred to the distortions in higher education that are often the outgrowth of overemphasis on the role of research, especially research sponsored by groups, organizations, or individuals with no direct responsibility for education, in the over-all functions of a university.

Because research has achieved a place of such importance in the nation's medical schools, and especially in their budgets, I thought it might be appropriate if I devoted many of my remarks here to some further comments on the role of research in our universities.

For a number of years at Tulane University, I was directly concerned in various studies related to my administrative functions as to what place research should have at that moderately sized, privately-supported university, which includes, as you know, an excellent medical school with a substantial research budg-

et. I was privileged, also, to serve with the Bayne-Jones Consultant Group appointed by Secretary Folsom and later with the consultants, under the chairmanship of Mr. Frank Bane, who reported to the Surgeon General, Dr. Leroy Burney. For the past year, I have given considerable thought to the emphasis that should be given to research at Washington and Lee University, a relatively small, privately supported institution whose activities are carried on largely at the undergraduate level. There is no medical school, but there is an excellent faculty, and there are scientific programs which include an emphasis on premedical preparation. Through these associations I have reached preliminary conclusions about the relationship of the research function of a university to the other generally accepted functions of an institution of higher learning.

At an institution of the size and organization of Washington and Lee, I have had an opportunity to observe closely the advantages of clear and explicit emphasis on teaching. Perhaps I may be accused of believing that the grass on my side of the fence always is greener. However, if I speak in part from bias—and I do not believe that I do—I still have the responsibility to say here what I think. Let me make it clear, further, that I am not negatively critical of research, or the researcher, nor do I intend to criticize the excellent research work that is being accomplished on our campuses or through direct association with our universities. I hope merely to raise some questions which will deal not with the intrinsic value of investigative study but with ways in which a university may achieve the greatest value from its research activity, with minimum disservice to its other important functions.

During the past 20 years, and at an accelerating pace in each of those years,

research, most of it sponsored or supported from nonuniversity sources, has rushed to a position of preeminence on many campuses. Because many universities do possess great wealth in terms of the ability of their faculties and talents and in terms of their laboratories, libraries, and equipment, government and industry have turned more and more to the universities for help in the many and varied research projects spawned by today's technology and science. The projects are often urged, either subtly or overtly, upon the schools by government or industry; but most schools actively seek such relationships with outside agencies. Great sums of money are frequently involved in the awarding of research grants and contracts.

All of this has tended to make research *the* prestige function of many universities. It also has tended to make the man engaged in research a more prestigious figure on the campus than the man who transmits knowledge to young men and women in the classrooms and laboratories. All too often, it sometimes seems, the basic function of teaching and learning for education's sake is subordinated to the function of learning for learning's sake, or, perhaps, learning for government or industry's sake. In short, perhaps an important purpose of a true university is being neglected. I sometimes wonder whether it may not be the most important purpose.

Of course, there is always the argument that the prestigious scholar or scientist can lift the academic or intellectual level of a university merely by his presence there. Maybe so, but I doubt that it has the effect some say it does. The undergraduate, who is just starting on an academic career and is perhaps never more susceptible to enlightened influence, derives little benefit from infrequent glimpses of a research scholar who devotes virtually all his energy and

time exclusively to research and study—rarely, if ever, finding occasion to talk with young people and answer their questions.

When such men are a part of a university community, they can exert tremendous influences for good among students and faculty alike; but the influence can usually be important only if their research activities can be made meaningful to these others. If the research work is conducted at a level so far removed from or advanced beyond the undergraduate level of comprehension, then there can be little direct benefit to students or to the immediate transmission of knowledge.

The nuclear physicist of international fame, engaged in research which employs the latest, high-powered accelerator, certainly is applying principles that the student should know and understand; but the chances are that his greatest efforts are far above the student's ability to comprehend and appreciate. Students who hold graduate fellowships and research assistantships often become little more than clerks or errand boys in these exciting projects, and they learn little in relation to the time spent. In the case of those faculty members who are supposed to pursue research *and* teach, I have observed a tendency in many to devote more time and attention to research and less to teaching. When a man is swept up in the excitement of an imminent new development in his research, or if he is concerned about a lack of progress in his investigation, he must indeed be a dedicated teacher if he does not tend to shift the emphasis of his labors more in favor of the research. He will have less time to devote to answering students' questions, or to take part in the informal discussions between professor and student that can contribute so much to the understanding of the young scholar.

In most universities, rank and file faculty members are expected to engage in research activity. In some instances, there are university funds available for financing worth-while faculty research interests; in others, faculty members are encouraged to seek outside support for their work. Where outside support is sought through a well planned, coordinated, properly administered university program, good results are expected; but often there is an absence of planning or coordination or decision, and much energy is wasted—or much effort is duplicated—and projects are undertaken that shift the emphasis of a department or a school or perhaps a whole institution.

Personally, I subscribe to the idea that faculty members should be encouraged to engage in scholarly pursuits beyond their normal preparations for teaching. Such activity reflects a highly desirable quality of alertness and progressiveness among teachers who are eager to keep abreast of or move ahead in their fields. I do not subscribe to the policy of "publish or perish" that affects some universities. A delicate balance between the teaching and research responsibilities of a professor and of a university must be maintained, or there will result, I fear, emphasis upon research that lessens the effectiveness of the teacher.

Is teaching less significant than research? I think not.

Is there no way in which the two can be blended effectively so that all concerned—the student, the professor, the university, the outside sponsor—will benefit? I think there is. However, it will involve great integrity on the parts of the universities, their administrators, and their faculties; and it will involve some changes in the attitudes of governmental agencies and industry, especially the former, regarding the role of university-based research.

In the simplest way I can say it,

universities perhaps will just have to balk at taking on increasing research loads for outside sponsors. Many of the assignments accepted by universities could be just as effectively, perhaps more effectively, carried on in nonacademic laboratories and testing facilities. I mentioned earlier that often a university's reason for accepting a project involves prestige as much as any other factor. Some university people may reason that, if they don't take the job, some other school will—so why not get credit for it themselves. However, as all of us in college administration must have learned by now, the funds received for research very often do not cover the actual costs of the project in terms of indirect costs, such as salaries, overhead, clerical help, and so on. As a result, funds are diverted from instructional purposes, and the students—the development of whose minds should be an ultimate concern of a university—are the ones who suffer, rather than benefit, from the research project.

Some universities appear to be eager to take on any and all research assignments, whether they are related to the primary objectives of the institution or not. Some accept grants that have such limitations attached to them by the sponsor that they are virtually valueless in serving any objective of the university at all. Increasing numbers of sponsors contribute to colleges and universities without undue restrictions; but there are enough who continue to impose these burdens as to constitute cause for concern.

As demanding as most universities are, and must be, for constantly increasing financial sustenance, it is difficult indeed for administrators to turn down offered or available gifts and grants, even if they are of questionable appropriateness for their schools. Nevertheless, I suggest that just that must

be done if we are to keep our integrity and if we are not to be unduly burdened with commitments that drain, rather than sustain. In each university, some one or some group must decide whether or not an offered or sought after project can best be done on that campus, whether or not that university's personnel and facilities promise a degree of success greater, or at least equal to, any other possible arrangement, and whether or not the project can be assimilated into the university's general policy on research and instruction. Unless these questions can be answered affirmatively, then the project would be better handled elsewhere, even at another university of different objectives—or often, I suggest, in an industrial, commercial, or governmental laboratory.

Once the universities assert themselves in this direction, there will be set in motion some economic forces that will tend to draw away from the campuses the top men of ability in research, especially in the sciences. Undoubtedly, some teachers would be affected. The universities must prepare to meet this challenge, for at whatever level campus research is conducted, it will still require the finest faculty minds available. Therefore, some pattern should be developed by the universities to assure that the economic attractions of governmental and industrial positions will not persuade scholars and scientists to desert the university classrooms and laboratories. We must find ways to meet the potential economic pressure, and, just as important, we must find ways to dignify the positions of our university teachers so that the prestige of the research specialist will not be a disturbing element in the teachers' attitudes toward their work.

In our concern for economic well-being in preserving the research functions that are appropriate to the campus, we should

be careful to maintain the proper support for instruction. I feel that many medical schools today should be able to work out their financial problems regarding instruction and training without having to rely on government or other outside assistance to the extent they do. Of course, any solution necessitates a rather sharp definition of what constitutes instruction and training. It perhaps should not include some of the hospital services and other public activities that some medical schools now conduct in the name of instruction and training.

I agree wholeheartedly that virtually all such services are desirable if they can be offered without unduly handicapping teaching; but my personal experience along these lines indicates that a medical school can become trapped in a situation that leads to neglect of the students and overburdensome, routine tasks for the teacher. Unfortunately, the public and clients who receive the services often do not recognize or give any credit for the sacrifices made. Services should be performed in keeping with the measures of good citizenship and not at too burdensome a sacrifice of the university, the faculty, and the students.

Research, then, must continue to be a significant part of the university pattern; but its primary objectives should be the addition to learning and improvement of the professional competence of the faculty. Research should be undertaken according to the motivation and qualification of the investigator and the judgment of his colleagues, rather than the availability of a sponsor.

College administrators and faculties should devise budgets and patterns of relationships between student and faculty scholar that will enable the pro-

fessor to engage in study and research which will be meaningful to him and his students alike. Necessarily, part of such research must be conducted on a training level, because the investigator must remain aware of the limitations of his young colleagues who watch and assist in his progress. Measured in terms of research productivity, such a program may show little immediate tangible results; but, measured in terms of a teacher who is interested in the development of young minds and the awakening within these minds their full potential, the results should be significant indeed.

No one knows better than you in the medical profession that each day brings new advances in our science and technology. There always will be frontiers of knowledge to be explored, and there always must be those who will investigate and record the new discoveries. However, these persons—these young men and women—will not assume these tasks automatically. They must be taught, prepared, and directed, in varying degrees at various stages in their educational development.

I suggest that a greater concern for our students, a greater personal interest in their introduction to research and the methodology, techniques, and tools of research—started at the undergraduate level and continued through graduate and professional school—will result in a significant advancement of the intellectual and scientific level of our country. A greater emphasis on the teaching function by men of proved ability in the research function could conceivably result in a growing number of young people who will go on to become teachers and scholars and research scientists themselves.

## MCAT Scores and Continuation in Medical School

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In a previous study (4), we found some relationship between certain psychological test scores and withdrawal from medical school. The study utilized the scores of six freshman classes at the University of Nebraska College of Medicine on the American Council on Education Psychological Examination. It was noted that the group of students which failed for academic reasons secured scores on both the Verbal and Quantitative Scales of that test which were significantly below the means of the classes studied. In other words, these academic failures were below average on both types of academic aptitudes measured by the test used. In contrast, a smaller group of individuals who withdrew from medical school because of "emotional or family problems" had a somewhat different pattern of test scores. In the case of these students, the linguistic scores did not differ from the mean scores for the classes as a whole, but the quantitative scores were below average. It was suggested that this latter pattern might reflect personal maladjustment or vocational misplacement.

It was apparent in this previous study that a marked majority of students withdrawing from medical school for either of the two reasons mentioned previously had scores on the Quantitative Scale which were below the median of their classes. It appeared, therefore, that test scores which reflect quantitative ability

may have value for indicating potential withdrawal from medical school.

Since the problem of attracting qualified students to medical schools is of particular importance today (2, 3), the problem of the drop-out from medical school is of increased significance. If potential drop-outs can be identified early and replaced by other students, the net result may be a slightly larger class of students who graduate from schools of medicine. Because of this, the results of our previous study encouraged us to investigate the problem of withdrawals from medical school further. Furthermore, since some of the scales of the Medical College Admission Test (MCAT) appeared to measure the same types of abilities as those measured by the American Council on Education Psychological Examination, we attempted a further study of withdrawal from medical school in relation to MCAT scores.

### THE PRESENT STUDY

The present investigation is concerned with students who withdrew from eight entering freshman classes at the University of Nebraska College of Medicine. A total of 53 students withdrew from the entering classes of 1951 through 1958 inclusive. Of these 53 medical students, MCAT scores were available on 51. These 51 students comprised the subjects of the present study.

The mean MCAT scores for this group of students were computed, as were the means for each of the eight freshman

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TABLE 1  
MEAN MCAT SCORES AND REASON FOR WITHDRAWAL

REASON FOR WITHDRAWAL	N	V	S.D.	MEAN MCAT SCORES					
				Q.	S. D.	M. Soc.	S. D.	Sci.	S. D.
Failure	27	460.56	104.11	479.07	95.27	477.59	99.73	439.07	109.15
Emotional and family problems and/or poor standing	12	510.00	69.70	477.50	114.25	512.58	71.87	471.66	109.30
Lack of interest	4	580.00	.....	482.50	.....	615.00	.....	420.00	.....
Transfer to another school (nonmedical)	3	525.00	.....	501.67	.....	531.67	.....	521.66	.....
Military service	1	365.00	.....	535.00	.....	515.00	.....	505.00	.....
Deceased or injured	3	448.33	.....	491.67	.....	448.33	.....	398.33	.....
Lack of finances	1	455.00	.....	415.00	.....	545.00	.....	435.00	.....
Total:	51								

classes. As most of the readers of this journal know, the MCAT consists of four scales or subtests. These are the Verbal (V), Quantitative (Q), Modern Society (M. Soc.), and Science (Sci.) Scales. In terms of our previous research and that of others (2), the scores for each of these four subtests were analyzed separately.

#### RESULTS

In the group of 51 students who withdrew from medical school before completing the program, 27 were classified as academic failures. An additional twelve withdrew because of emotional and family problems. The remaining subgroups contained relatively few cases. The distribution of MCAT scores for these students is presented in Table 1.

The mean scores and standard deviations for the various classes are presented in Table 2. The scores of the dropouts were excluded from the computation of the class means.

As can be noted in the first two tables, the "failure" group tends to have a mean score on *all* the subtests which is below the mean for *any* of the eight classes. This is perhaps most notable in the Quantitative and Science Scores. Since an analysis of variance of the eight classes for each of the four separate subscales of the MCAT yielded a nonsignificant "F" ratio in each instance (See Table 3), the mean scores for the "failure" group were compared with the mean scores for all eight classes combined, utilizing the "*t*" method. In this analysis the means were found to differ

TABLE 2  
MEAN MCAT SCORES FOR EIGHT CLASSES

Entering class	N	V	S. D.	Q	S. D.	M. Soc.	S. D.	Sci.	S. D.
1951	80	499.13	82.05	536.25	76.54	508.38	88.83	517.25	61.18
1952	74	500.54	87.86	540.54	92.59	501.35	77.16	510.14	82.53
1953	77	490.84	86.81	517.08	85.60	484.61	88.84	493.96	78.70
1954	78	477.44	93.56	511.28	90.09	511.15	77.68	485.90	75.77
1955	75	487.40	93.59	519.40	85.54	500.73	87.84	473.40	89.96
1956	85	503.94	88.79	516.71	70.50	520.88	83.93	484.41	90.69
1957	85	504.53	86.55	502.18	76.39	503.82	80.24	497.12	86.92
1958	72	496.67	76.59	527.22	79.39	503.61	64.54	502.08	76.91
All classes combined:	626	495.85	87.98	520.95	82.49	504.58	82.09	495.45	81.89

TABLE 3  
ANALYSIS OF VARIANCE OF MCAT SCORES FOR EIGHT CLASSES

Scale	Source of variance	Sum of squares	d.f.	Estimate of mean square	F	Significance level
V	Total	4847453.9				
	Within	4799428.6	618	7766.07	1.14	NS
	Between	48025.3	7	6860.76		
Q	Total	4259910.0				
	Within	4221506.0	618	6830.91	1.25	NS
	Between	38404.0	7	5486.29		
M. Soc.	Total	4218292.1				
	Within	4158475.5	618	6728.92	1.29	NS
	Between	60816.6	7	8688.08		
Sci	Total	4198674.8				
	Within	4087182.8	618	6613.56	2.41	NS
	Between	11492.0	7	15927.43		

significantly at least at the .05 level of confidence on all the scales except that of Modern Society.

Besides the "failure" group, the only other group of moderate size is the one which withdrew because of emotional and family problems. As can be noted in Table 1, this group tends to obtain higher MCAT scores than the "failure" group on all but the Quantitative Scale. When the mean scores of this group are compared with the mean scores for all the classes combined, none of the differences approach an acceptable level of significance by means of the *t* test. Only the difference on the Quantitative Scale appeared to approach significance, with the other three clearly not significant.

Since the MCAT means do vary from class to class (albeit non-significantly, as indicated by the analysis of variance) and the number of students who have withdrawn from medical school also varies each year,<sup>1</sup> the previous analysis utilizing class means and the *t* method may tend to obscure some of the relationships. As a consequence, it was deemed desirable to compare students

who withdrew from medical school in a given year with their own class. The MCAT scores of students who withdrew were dichotomized as falling either above or below the median for their own class. These were then grouped together to give the total number of withdrawers who were either above or below the median, when compared with their own class. A  $\chi^2$  analysis was then done to see whether this distribution was significantly different from a chance (50:50) distribution. As can be seen in Table 4, the "failures" differ significantly from the means of their own classes only on the Science Scale, whereas the other subgroup shows no significant differences. In other words, on the MCAT the group that withdraws because of emotional factors is not distinguishable from those students who continue in medical school.

These results support only in part those secured by means of the *t* method. Whereas the results with the Quantitative Scale are equivocal, the Science Scale appears to consistently discriminate the "failures." However, although the Science Scale, and possibly the Quantitative Scale, may be of some value in discriminating potential cases of academic failure, they do not appear

<sup>1</sup> The number who withdrew each year from 1951 to 1958, respectively, were 3, 4, 6, 4, 10, 8, 6, 10.

TABLE 4  
DISTRIBUTION OF WITHDRAWERS IN RELATION TO THEIR OWN CLASS MEDIAN

GROUPS		V	MCAT SCALES		
			Q	M. Soc.	Sci.
Failures	Above median	11	10	9	6
	Below median	16	17	18	21
	$\chi^2$	.93	1.81	3.00	8.33
	Significance level	N.S.	N.S.	N.S.	.01
Emotional problems	Above median	8	6	6	5
	Below median	6	6	6	7
	$\chi^2$	1.33	0	0	.33
	Significance level	N.S.	N.S.	N.S.	N.S.

capable of discriminating those who withdraw for emotional reasons.

#### DISCUSSION

The results secured in the present study support only in part the findings reported in our previous study (4). Whereas the academic failure group appears to be below average, particularly on the Quantitative and Science Scales, the group which drops out for emotional reasons shows no statistically significant inferiority on any of the MCAT Scales. In the previous study, the latter group tended to have below average Quantitative scores on the American Council on Education Psychological Examination, but there was only a trend in the present results with the Quantitative Scale of the MCAT. Since the number of cases in these studies is relatively small, one must be cautious in drawing conclusions. However, on the basis of this and other studies (2), the Science Scale of the MCAT seems more reliable as a predictor of academic failure than do the other scales. In addition, although the

results of the present study are equivocal, tests of quantitative ability still appear to merit consideration in a battery of tests for applicants for medical school (4). Finally, it appears that other types of tests or techniques are needed to appraise those individuals who withdraw from medical school because of emotional or family problems.

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# A Simple Teaching Model Illustrating the Rotation of the Gut

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As teachers of embryology know full well, it is often difficult to ensure that students visualize in three dimensions the embryonic development of certain organs or systems. This problem engendered the conception of a working model, to demonstrate the rotation of the stomach and intestine in the course of a lecture to a class of some 200 students.

The method of construction of the model, and guidance concerning its operation, are presented here for the benefit of those who may find this model a useful teaching aid.

**Materials.**—The requirements are as follows: a blackboard easel; a board 45 × 75 cm. (masonite was used for the original, but some material such as soft wood would more easily take drawing pins); 2.3 metres rubber tubing of 1-cm. diameter; 12 cup hooks of such a size that the rubber tubing fits snugly under them; 2.5 m. of fine, soft, white or light-colored, fairly transparent material, e.g., cotton net (nylon is too stiff) 105 cm. wide; two differently colored plastic clothes pegs; 40-cm. thin, brightly colored cord; 1000-gm. light-colored plasticine.

**Construction.**—Note: "right" and "left" in the ensuing description refer to anatomical right and left. The model is to be mounted on the board, and the latter firmly supported on the easel; for this purpose a wooden ledge bearing a groove 1.5 cm. deep along its upper

surface is made and securely fixed to the easel pegs, which must fit tightly into their sockets. The bottom edge of the board rests in the groove, which prevents it from slipping.

Down the middle of the board a slit is made according to the sketch below (Chart 1). The edges of the slit must be sandpapered so that they are perfectly smooth. The rubber tubing is arranged on the board as illustrated (Chart 1), and the positions for cup-hooks A-L marked. The hooks are screwed into the board, and a hole of about 3 mm. diameter is drilled at point M. The orientation of the hooks may be adjusted later when the model is operated. A coat of paint with a matt finish, in a dull color which contrasts with the net, tubing, and plasticine (e.g., a medium brown), prevents the board from being marked by the greasy plasticine.

Approximately 2.1 m. of the net is folded in half lengthwise and stitched parallel to the fold at a distance of 18–20 mm. from it, from within 23 cm. of the upper end all the way to the other end (see left hand side of Chart 2). The two free edges on the opposite side of the strip are stitched together for about 20 cm., starting 20 cm. from the top. A parallel row of stitching 18–20 mm. further in makes a slot open at both ends (see right side of Chart 2).

Plasticine is used to mold the stomach around one end of the rubber tubing,

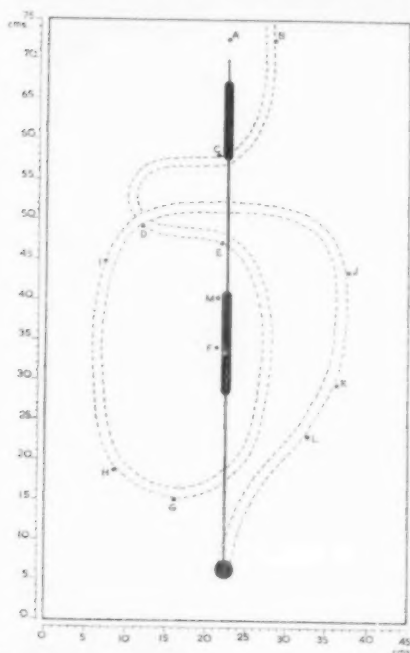


CHART 1.—Board on which model is to be mounted, showing slit down the center, and positions of hooks A-L. A scale is included to allow for the calculation of the positions of the hooks, wide parts of the slits, etc. Dotted lines indicate the position of the rubber tubing.

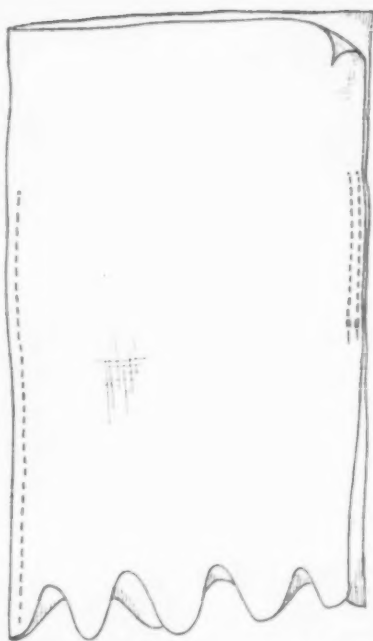


CHART 2.—Folded net (mesentery) showing slots (long one on the left and short one on the right) made by stitching the two layers together. Stitching is represented by interrupted lines.

leaving about 7 cm. of tubing free at the upper end. A bulge indicates the fundus. The stomach should be approximately 16 cm. long. The tubing issuing from the lower end of the stomach is then threaded into the longer slot in the folded net from the upper end, so that the stomach and upper 5 cm. of the intestine are lying free between the two layers of net. The stomach is now oriented so that the fundus faces the shorter slot, and positioned so that the folded edge of the net is about 6 cm. away from the border of the stomach. The two layers of net are stitched together close to the edges of the stomach and upper 5 cm. of the intestine, as il-

lustrated in Chart 3. A triangle is cut out of the folded net in the upper duodenal region (Chart 3). The fold is then slit from here to the top of the net. This part of the net represents the ventral mesogastrium, and has a cut edge. The two free edges of its lower border may be stitched together with a piece of colored wool, to represent the bile duct. The remainder of the net represents the dorsal mesogastrium, dorsal mesoduodenum, mesentery, and mesocolon. If a gathering thread is now run through the upper edges of the net constituting the dorsal mesogastrium for about 8 cm. from the upper pole of the stomach, then, when the lesser sac is made later, it will not gape open above (Chart 4).

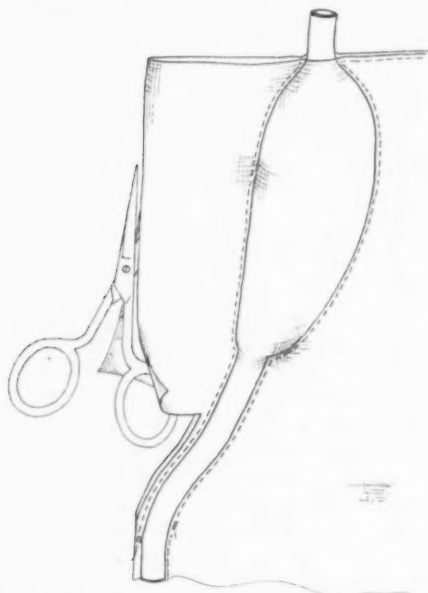


CHART 3.—Positioning the stomach in the mesogastrium.

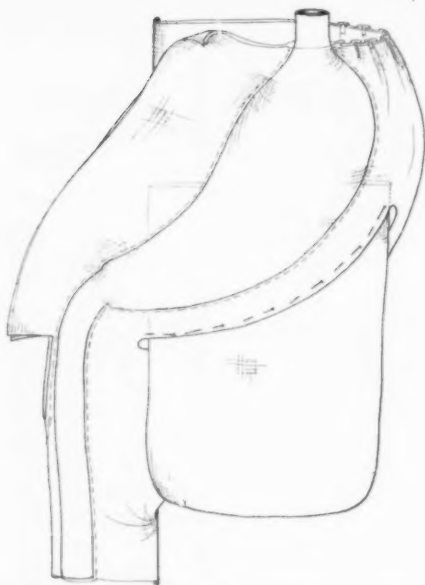


CHART 4.—Insertion of the greater omentum into the dorsal mesogastrium.

The free edges of the dorsal mesentery are passed through the slit in the board. Behind the board a 20-cm. length of rubber tubing is inserted into the slot made earlier at the cut edges—this serves to prevent the mesentery from being pulled right through to the front of the board in the region of herniation. A knot, tied in the lower end of the long piece of tubing, behind the board, will prevent this end from being pulled through to the front when the model is operated. If the net is not sufficiently transparent for the tubing to show up well, paint the net, covering it with a dark red dye.

A small hole is made in the back of the esophagus near the upper end of the tube. This may then be hooked on to hook A (Chart 1). A second hole is made on the right side of the esophagus just above the stomach—this is hooked on to hook B when the stomach has been

rotated. If it is desired that the model should demonstrate the greater omentum coming to overlie the transverse colon, the following procedure may be adopted: rotate the stomach, hooking the lower end of the esophagus on to hook B, and then push the upper end of the duodenum under hook C. Pull sufficient dorsal mesogastrium through the slit in the board to form the lesser sac. Now mark, with pins or chalk, a line on the dorsal mesogastrium at the left border of the lesser sac, more or less paralleling the left border of the stomach in its lower two-thirds. Slit the mesentery along this line. Measure the horizontal distance between the ends of the slit. Cut four pieces of net 2 cm. wider than this, and 32 cm. long. Stitch these four pieces together along three sides, leaving one short side open. Turn inside out to form a double-walled pocket. Insert the free edges into the slit in the dorsal



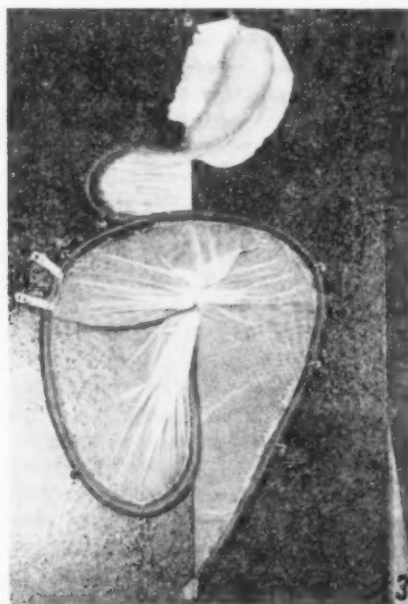
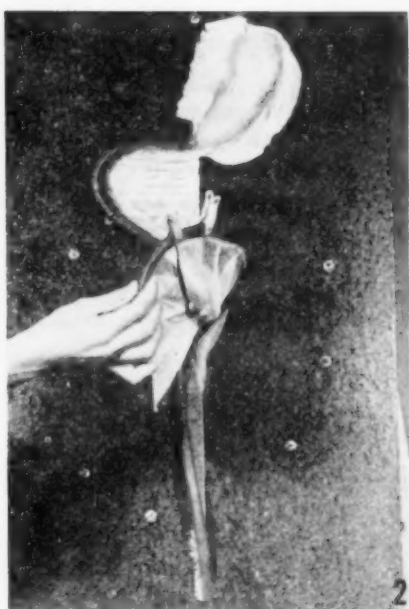
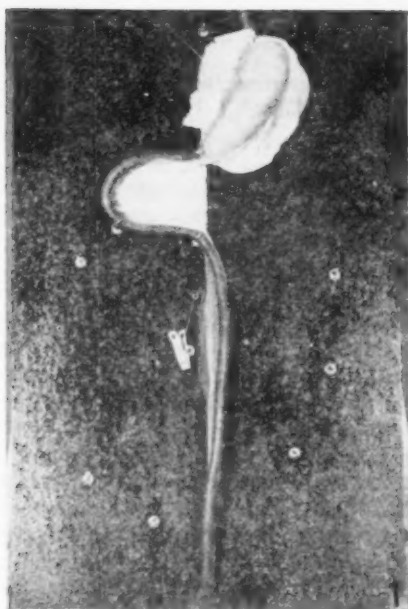


Plate 1

- FIG. 1.—Rotated stomach and duodenum, and lesser sac (into which a probe has been inserted from the right).  
 FIG. 2.—Lengthened proximal limb of the herniated gut loop.  
 FIG. 3.—Gut withdrawn into the abdominal cavity. Caecum sub-hepatic.  
 FIG. 4.—Descended caecum. Greater omentum overlapping transverse colon.

mesogastrium so that the pocket hangs down vertically. Pin the upper wall of the pocket to the upper edge of the slit in the mesogastrium and the lower wall to the lower edge of the slit (Chart 4). Stitch the raw edges together on the inside so that the seam does not show. Trim the seam.

If subsequently the net is found to be too thick and bulky, one sheet of the double layer of dorsal mesentery from the duodeno-jejunal junction onward may be trimmed off 5 mm. from the stitching.

A piece of soft, brightly colored, thin cord (or thick wool) 40 cm. long is knotted at one end; the other end is threaded through hole *M* and attached to a plastic peg. The cord will represent the superior mesenteric artery, the peg the vitello-intestinal duct.

*Operation.*—It is essential that the lecturer should become perfectly familiar with the manipulation of the model, so that it may be smoothly and easily operated before a class.

Care must be taken not to obscure the view of the model. A right-handed individual will probably find it easier to stand to the left of the model, controlling the mesenteries behind the board with the right hand, and the gut with the left, aided by the right when necessary.

At the commencement of the demonstration, the esophagus should be hooked on hook *A*, and the upper end of the duodenum on hook *C* so that the mesenteries stand at right angles to the board. The gut is straight, and its lower end passes through the hole in the lower end of the board—thus the greater part of the tubing with its mesentery will hang below the board. The pocket representing the greater omentum must be lying inside out (in the mesentery at the back of the board). The superior mesenteric artery should be almost entirely pulled through to the back of the board. When

the mesenteries are indicated at this stage, it should be explained that the ventral mesogastrium in the model has a cut edge.

It has been found best to deal first with the stomach and duodenum and then with the rest of the small and the large intestine.

*Stomach and duodenum.*—Caudal migration of the stomach relative to the somites, and buckling of a duodenal loop, may, if so desired, be shown by releasing the esophagus from hook *A*, raising the stomach above the top of the board, anchoring the gut at hook *E* and then bringing the stomach down to hang from hook *A*, so causing the duodenum to loop ventrally. The upper end of this loop is pushed under hook *C*; later, as the stomach is rotated, the duodenum will flop over to the right, where it is fixed under hook *D*.

Greater and lesser curvatures are produced in the stomach by bending the plasticine. Rotation through 90°, bringing the greater curvature (original dorsal surface) to the left, and the tipping of the cardiac end to the left may be demonstrated in turn and then repeated in one combined movement, at the end of which the lower end of the esophagus is hooked to hook *B*. During this procedure, pull enough mesentery through the slit in the board to form the lesser sac. A broad probe or hand may be passed behind the ventral mesogastrium into this sac to demonstrate it. (This stage in the operation of the model is illustrated on Fig. 1.) The greater omentum will have been partly pulled through to the front: it may subsequently be pulled through completely and tucked away behind the stomach. The wider slit in the board is designed to admit this more bulky part of the net.

*Small and large intestine.*—The lower end of the duodenal loop has been previously anchored at *E*. By gathering

up the requisite length of mesentery behind the board in the right hand, and releasing it as necessary, a loop of gut may be pulled ventrally by the left hand to a distance of about 35 cm. from the board, dragging its mesentery with it. Fix the end of the distal limb of the loop under hook *F*. The superior mesenteric artery is now pulled through the board and its end clipped by means of the clothes peg, to the apex of the gut loop. The clothes peg represents the vitello-intestinal duct.

The proximal limb of the loop is rotated through 90° to the right. A second clothes peg marks the caecal diverticulum on the distal loop. Now the proximal limb must be increased in length: to accomplish this, remove both clothes pegs, hanging the mesenteric artery out of the way, e.g., over the hook *I*. Free the gut from hook *F*. Again, gather the mesentery up behind the board with the right hand as the left hand pulls more gut through the hole at the bottom of the board. Straighten the hind gut, fixing it at hook *F*, and adjust the herniated loop so that the proximal limb hangs down considerably. Reattach the end of the superior mesenteric artery and the caecum. It is wise to mark the gut previously (e.g., by a short, colored thread in the net alongside the tubing) at this second point of attachment of the superior mesenteric artery. Figure 2 illustrates this stage in the operation of the model.

Now the herniated gut is to be withdrawn into the body cavity. Free the gut from hook *F* so that the hind gut below it may be pushed to the left as the gut returns. Continue the rotation of the proximal limb through a further 90°, carrying it back toward the lower part of the board (to the lower posterior part of the abdominal cavity), the distal limb following it (to the superior ventral part of the abdominal cavity). The

proximal limb has not been lengthened sufficiently to show the coiling of the gut (this becomes too cumbersome in the model, but should be pointed out to the class)—it is simply looped on to the board as illustrated (Fig. 3). The caecum should come to lie in the sub-hepatic position indicated, where it is hooked under hook *I*, and the large gut hooked into position, using hooks *J*, *K*, *L*. Adjust the mesentery and pull it taut at the back of the board (the wider slot in this region of rotation of the mesentery should accommodate it). The caecum is now brought down to its definitive position (hook *H*) in the right iliac fossa, by unhooking the large gut, pulling through a further 30 cm. of tubing, readjusting the large intestine, and hooking it in position. The mesenteries are readjusted at the back, care being taken to keep the point of twisting high. Figure 4 illustrates this stage in the operation of the model.

*Greater omentum.*—The greater omentum may be pulled out from the lesser sac so that it hangs down over the transverse colon (Fig. 4): its posterior layer may be pinned to the transverse mesocolon from below to indicate the adherence of the two, if so desired.

*Fixation of the gut.*—The fixation of the duodenum, ascending and descending colon by fusion of their mesenteries with the peritoneum of the dorsal body wall, and also the fusion of part of the dorsal mesogastrium with the peritoneum, may be shown by pinning down these parts of the mesentery to the backing board with drawing pins (if the net is coarse-meshed, adhesive tape should suffice). The definitive lines of attachment of the mesenteries may now be illustrated.

*Pancreas, spleen, etc.*—Various accessories may be added to the model—e.g., the right and left vagal nerves to the stomach may be represented by two pieces of yellow cord held to the sides

of the esophagus by a rubber band, the ends being bound to pins driven into the original lateral walls of the stomach; the pancreas may be represented by a piece of colored paper cut to shape and affixed to the right side of the mesoduodenum by a pin or two; the spleen may be similarly made and attached to the dorsal mesogastrium.

When used in association with black-board drawing, this model can effectively impress on a class a three-dimensional picture of the developmental changes involved in gut rotation. Furthermore,

since the model is not easily damaged, it may subsequently be made available to the students, so that they may handle it themselves; once they can operate it successfully, they have mastered the essentials of the subject.

#### ACKNOWLEDGMENTS

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## The Referral Process in Medical Care and the University Clinic's Role\*

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### INTRODUCTION

Consultation with colleagues and referral of patients are increasingly important ingredients of optimal medical care. The rapid extension of knowledge and the accompanying, necessary growth of specialization must inevitably mean more frequent consultations between family physicians and specialists and greater use of referral to medical centers, university and others, for both complex problems and simple problems grown difficult to manage for various reasons. Ease of transportation has encouraged the greater use of medical centers for referral, and the increasing mobility of Americans means more frequent need for responsible transfer of a patient's continuing care from one physician to another.

In the face of these changes, it is surprising how little attention the referral process has received. Its role in the continuing education of the general practitioners was discussed by Peterson, Andrews, Spain, and Greenberg (6). How-

ever, even the simplest data on frequency of referral appear in only one previous report in the American literature. Taubenhaus (7), in describing one general practice in rural North Carolina, found that 5.7 per cent of the patients seen in 1 year were referred to consultants or medical centers, and 0.6 per cent of all patients were referred to one of the three university medical centers in the state.

In Great Britain several studies of referral practices have been made in recent years, including those of Fry (2), Hopkins (3), and Logan (5). They found great variability in reported referral rates, ranging from 6 to 32 per cent of the patients seen annually, which appears to depend largely upon local availability of x-ray and laboratory facilities. Rates of referral primarily for a consultant's opinion were less variable and averaged about 5 per cent of the patients seen annually.

In studies of referral by the present authors, to be described more fully below, a representative sample of 83 general practitioners in North Carolina, who reported all referrals for 2 weeks, referred on an average four patients per week to some other physician (Chart 1). Of these, an average of 0.75 per week were to medical centers. Figures for specialists were only slightly lower.

In this country data on total patient populations of individual physician's private practices are not available, so

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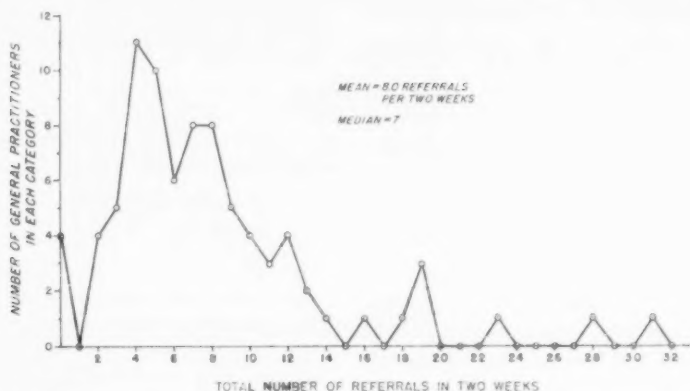


CHART 1.—Two-week sample of patient referrals by 83 general practitioners in North Carolina.

that referral rates of these physicians based on the sizes of their practices cannot be calculated. However, in a similar representative sample of 94 general practitioners studied only 3 years earlier, Peterson, Andrews, Spain and Greenberg (6) found that, among 91 physicians for whom patient load data were obtainable, each physician had an average of 169 office visits per week. Thus, it may be fair to say, as an approximation, that general practitioners in North Carolina, on an average, refer to someone else four out of 169 or about 2.5 per cent of their patient visits.

Looked at another way, the data indicate that the average general practitioner refers over 200 patients per year to other physicians, and approximately 40 of these referrals are to medical centers. More information is needed, but even these figures illustrate the importance of referral in an average physician's practice. On 2 working days out of every 3 he is likely to be consulting another physician concerning one of his patients or sending one of his patients to a medical center.

Can the referral or consultative process, and the teaching of it, be examined

critically, with the aim of improving its contribution to medical care? The work to be discussed here is offered as evidence that such an approach can be made.

#### STEPS IN THE REFERRAL PROCESS

It is helpful, first of all, to divide the referral process into the sequential steps which, it is proposed, are important to the rendering of good medical care. The performance of physicians and medical students at each step can then be examined systematically. Table 1 presents such an approach.

Three situations to which this formulation can be applied will be discussed: the students' experience in physician-to-physician consultation; the physician-to-physician consultation in medical practice; and the process of referral to university medical centers.

*Physician-to-physician consultations: The student's experience.*—It should be relatively easy to help the senior medical student or house officer to learn how to participate optimally, either as the referring physician or as the consultant to whom the referral is directed, in this face-to-face type of consultation. Unfortunately, teaching hospitals and, in



particular, teaching clinics by their examples often appear to promote bad habits rather than good. It is common practice in teaching clinics, even in the best medical centers, to refer patients from one clinic to another, with no statement of the reason for the referral, with no direct contact between the two physicians in the two clinics concerned, even though this could often be arranged, and with no statement about who is to assume responsibility for further care of the patient. The consultant tends to deal with the patient directly, rather than through the referring physician. Often in this setting, the physician, house officer, or student in the first clinic does not even have the educational benefit of learning what those in the second clinic think about the problem.

It must be pointed out that nothing in the system *prevents* physicians in clinics from conducting a more responsible referral, and here as elsewhere in medicine the ability and conscientiousness of the individual physician are more important in rendering good medical care than the setting in which he works. However, it is common experience that even good physicians tend to slip into the bad habits of their environment.

Over the years a number of medical schools have recognized that this lack of direct contact with the specialist-consultant in the consulting relationship deprives the student and house officer of both the chance to learn medical knowledge from him and the experience of participating properly in this relationship. Various steps toward correction have been taken. The program for fourth-year students in the General Clinic of the North Carolina Memorial Hospital, the major teaching clinic for the University of North Carolina School of Medicine (White, [8], White and Fleming, [9],) may be used as an example.

TABLE 1

STEPS IN THE REFERRAL PROCESS WHICH ARE IMPORTANT TO THE RENDERING OF GOOD MEDICAL CARE

- I. Definition of need for and purpose of the referral; mutual understanding about these between referring physician and patient.
- II. Adequate communication of this purpose and of problems for which help is needed.
- III. Attention given to these needs and problems by the consultant.
- IV. Adequate communication of consultant's findings and recommendations to referring physician.
- V. Clear understanding by patient, referring physician and consultant of responsibility for the patient's continuing care.

For the student in the General Clinic the new patients assigned to him are his primary responsibility. He is placed in the position of being their physician. All staff physicians who participate in the patient's care and in the education of the student, including the student's initial instructor and any consultants, work through the student rather than becoming directly involved with the patient. At the patient's initial visit the student takes a history, examines the patient, and presents him to his instructor, who, acting essentially as a consultant, reviews any pertinent points in the history, examines the patient, and then discusses the patient's problems privately with the student. The plans which they agree upon for further study, consultation, and therapy are then explained to the patient by the student and carried out by the student under the supervision of his preceptor.

Consultants in most specialties are available on call at a certain hour, as in other similar teaching clinics. Often the initial instructor as well as the student will discuss the problem with the consultant. Alternatively, the student may elect to have the patient return at

the time of a specialty clinic. Again the student is present because attendance upon his patient's needs takes precedence over any other exercise for which he might be scheduled. By keeping his own appointment book, he usually can arrange to avoid such conflicts of schedule. He presents his patient's problem to one of the specialists in the specialty clinic, who, after examining the patient, discusses the problem with the student, not the patient, and supervises the student in working out the problem.

In these several ways the student has opportunities to learn the consulting role.

*Physician-to-physician consultations in medical practice.*—This type of direct consultation between physicians in medical practice has had little study. However, observations made in the course of our studies of physicians' patterns of referral to a medical center suggest that the lines of referral are not clear between general practitioners, those internists and surgeons who also do some family practice, and more specialized consultants. This problem warrants more investigation, in the interests of learning how all consultative personnel and facilities, local and distant, may be used more effectively and economically.

*Referral to university medical centers.*—A major contribution of a university hospital and clinic to the medical care of its area is to serve as a referral or consultative center for the more complex and difficult problems of all types. Data from on-going studies of this referral function's efficacy in the General Clinic of the North Carolina Memorial Hospital will illustrate the points to be made. The information to be reported was gathered through interviews with a representative, stratified, random sample of 150 physicians (general practitioners and specialists) in the referral area of this institution and 125 patients whom

they had referred (Andrews *et al.* [1]). In 85 instances the physician, at the time of the interview, had referred a patient to this clinic within the preceding 2-3 months and had received a letter giving a summary of the clinic findings and disposition of the patient. In these 85 instances the physician and the specific patient he had recently referred were interviewed to ascertain their responses to a number of the same questions relating to that referral. Interviews with physicians were conducted by three internists on the staff of the medical school who visited the referring physicians. Interviews with patients were conducted by two social workers who saw the patients briefly at the Clinic and for a more prolonged interview later in the patients' homes. The medical records of these patients were also available for analysis. Detailed analyses of some of the results have been reported elsewhere (Williams *et al.* [10]).

Two examples of the referrals studied may serve as illustrations.

1. A general practitioner in a town of 1100, 66 miles away, referred an 18-year-old farm boy with thyrotoxicosis. He telephoned the Clinic for an appointment, stating that he desired the help of a specialist in managing this patient. He sent similar written information with the patient, who knew that he was being referred to see a specialist about his problem. In the Clinic the diagnosis was confirmed, and the patient was seen by a metabolic consultant who assisted the student in working out a plan of treatment with propylthiouracil followed by plans for surgery. A summary letter containing this information was sent the referring physician about 2 weeks after the patient's first visit. The letter stated that the patient was to be followed at monthly intervals in the Clinic until he was ready for surgery and also that he should see the referring physician

between clinic visits, and was to have white blood counts done. Apparently the patient accepted these plans, since he kept his appointments with his family physician and in the Clinic. A follow-up letter was sent the family physician after the follow-up visit a month later. Subsequently, the patient was admitted for surgery and returned to the care of his regular physician, a complete discharge summary being sent at the time. This example seems to have satisfied the requirements about agreement upon the purpose of the referral and adequacy of communication between patient, his family physician, and the referral center.

2. In marked contrast was the referral of a 47-year-old man from a town of 18,000 population 100 miles away, sent to the Clinic without an appointment and with a prescription pad note which gave no medical information.

When interviewed later, the physician stated that the patient was referred for psychiatric help because he thought the patient had a neurotic problem. The patient was concerned about various symptoms and indicated later to the social worker-interviewer that he never really understood his problem either in the light of organic diagnoses made in the Clinic or in the light of his family physician's impressions. The clinic physicians found and concentrated on two organic problems, rheumatic heart disease and prostatitis, but gave little attention to the patient's symptoms and gave no evidence in the record or summary letter of having considered the possible neurotic problem which the family physician had in mind. The Clinic sent no follow-up letter after the initial report to the referring physician, despite several further visits to the Clinic, and the patient did not return to see his referring physician. Thus, the family physician did not communicate adequately with the Clinic, and the

Clinic's communications with the family physician were inadequate, as was its handling of the ultimate disposition of the patient.

These extreme examples illustrate the range of referral experiences and the fact that a referral to a medical center either can make a major contribution to the patient's care or can make very little contribution. It may even be harmful if the original relationship with the referring physician is broken and no other continuing relationship is substituted. Certainly the Clinic in the second example was in no position to give day-to-day care when needed to the patient living 100 miles away; some physician in his local community should have been involved in the patient's continuing care. The economic waste for both patient, the medical center, and society incurred by such an ineffective referral is also apparent.

The results of the study at the North Carolina Memorial Hospital may be examined in relation to the steps of the referral process previously described. The first requirement is that the referring physician define the reasons for referral. Table 2 summarizes the answers of physicians about specific patients, whom each had recently referred, to the question, "Why did you refer this specific patient?" In only a fourth of the referrals was there evidence for rather specific definition in the physician's mind of the medical basis for the referral. In 33 per cent of instances the physician gave no evidence that he specifically defined the reason for referral or the problem with which he wished help. In almost 40 per cent of instances the physician was aware that the patient's own dissatisfaction or desire, for some reason, to go to the medical center, was the motive for the referral. This awareness might be construed as meaning that the physician had more or less clearly

TABLE 2  
REFERRING PHYSICIANS' FIRST ANSWERS  
TO THE QUESTION, "WHY DID YOU REFER  
THE SPECIFIC PATIENT TO THE  
GENERAL CLINIC?"

	Number	Per cent
A. Relatively specific medical reasons:	20	24
-Beyond voluntary limits of practice;		
-Beyond his competency;		
-For specialized diagnosis;		
-Inadequate local facilities.		
B. More general, nonspecific reasons: (e.g., "Diagnosis and treatment.")	28	33
C. At patient's request or because patient was dissatisfied.	33	39
D. Medical indignity.	3	4
E. Physician cannot recall key patient.	1	1
Total:	85	100

defined the reasons for referral. However, in no communication from the referring physicians was this particular kind of reason ever stated. Thus, they do not treat it in realistic terms or communicate it when a referral is arranged.

It is of interest that replies from specialists were not significantly different from general practitioners'. Furthermore, the independent statements by the patients themselves about the high frequency of patient-initiated referrals agreed closely with the physicians' statements: 32 of the 84 patients in the sample stated that they had asked the physicians to refer them; the over-all degree of agreement between patients' and physicians' responses to this question was 78 per cent.

It must be concluded that often the referring physician does not clearly define, even for himself, the purpose of the referral to a medical center.

When the second step in referral, communication from the referring physician

to the referral center, was examined, it was found that in only 39 per cent of the 85 referrals was there evidence in the medical record of any written communication from the referring physician which gave any medical information, even so much as his diagnosis or the area in which he thought the problem fell (Table 3). The referring physician, when interviewed, corroborated this finding. As one might expect, when the referring physician had a relatively specific reason for the referral he was more likely to send medical information; see Table 3. However, even in this group medical information was sent only 60 per cent of the time.

These findings confirm the generally held impression that poor communication is a major problem in referral. Efforts to encourage better communication from physicians, and to measure any improvement achieved, are in progress.

For the third step in referral, the Clinic's examination of the patient, one might expect that the Clinic physicians would find it difficult to give adequate attention to the problems with which the physician and perhaps the patient were concerned when the physician so often sent little or no information. From the data available, it is not possible to say how much of the contribution the Clinic made toward *resolving* problems. However, it is possible, in the study under discussion, to say whether the Clinic investigated and dealt in some way with the problems which were paramount in the patients' minds as revealed by their interviews, and in the physicians' minds as revealed by the interviews with them. The Clinic's performance on this point was judged by reference to the medical records and to the summary letters sent the referring physician. In 83 per cent of instances, among the key patients, the Clinic in performing a complete work-up had explored the area of con-

TABLE 3

COMPARISON OF PHYSICIAN'S REASON FOR REFERRING THE SPECIFIC PATIENT WITH THE TYPE OF COMMUNICATION HE SENT

PHYSICIAN'S REASON FOR REFERRAL	Totals (No.)	TYPE OF COMMUNICATION SENT	
		None, or brief note with no medical information	Note or letter containing medical information
		(No.) (Per cent)	(No.) (Per cent)
A. Relatively specific reason	20	8 40	12 60
B. Nonspecific reason	28	20 71	8 29
C. Primarily patient initiated	33	21 64	12 36
D. Medically indigent	3	2 67	1 33
E. Physician could not recall key patient	1	1 100	- 0
Totals:	85	52 61	33 39

cern to both referring physician and patient. However, the fact that for one patient out of six the major concerns of both the patient and his physician were not even considered indicated a fairly serious waste of effort. One would think that this could have been largely avoided by adequate communication from the physician and by more effort on the part of the Clinic staff to learn what questions concerned the patient.

The fourth step in referral, the communication of the Clinic's findings to the referring physician, has been strongly emphasized throughout the 7 years of the General Clinic's existence. A brief handwritten letter is sent on the day the patient is first seen, and students and house staff are required to write a full summary letter within the next 2 weeks, after most diagnostic studies are completed. The prompt dispatch of this summary letter to the referring physician is a major item which is checked upon at weekly chart conferences (Huntley *et al.* [4]). It has been found repeatedly that such thorough control is necessary if the Clinic is to approach the desired goal of sending a satisfactory letter about each patient within a reasonable time. In the study sample of 85 patients, two-thirds of the letters were sent within the first 4 weeks,

and 90 per cent were sent within 6 weeks.

With the exception of four letters, these summary letters upon review appeared to contain adequate statements of the findings, diagnoses, and recommendations, but not necessarily disposition of the patients. The referring physicians, when interviewed, indicated generally favorable reactions to the letters, as evidenced by the fact that 90 per cent of them stated that the letters were "satisfactory." However, upon critical review of the whole referral experience, it was found that in twenty instances or almost one-fourth there should have been further follow-up letters from the Clinic to referring physicians which were not sent. In this respect, communications from the referral center were not adequate. Here is a point at which closer supervision of follow-up letters in chart conference could probably effect further improvement.

The final step in the referral process, the clear definition of the continuing responsibility for the care of the patient, would seem to be the most important step. In the present study, three sources of information were available for evaluating the adequacy with which the Clinic personnel discharged their responsibility to arrange for continuing care of these patients. The Clinic rec-

TABLE 4

COMPARISON OF THE CLINIC'S DISCHARGE OF RESPONSIBILITY FOR CONTINUING CARE WITH THE FREQUENCY OF RETURN OF PATIENTS TO SEE THEIR REFERRING PHYSICIANS.\*

ADEQUACY OF DISPOSITION BY CLINIC	PATIENT'S RETURN TO SEE REFERRING PHYSICIAN		
	Did return (No.)	Did not return (No.)	Per cent return- ing
Disposition clear	23	6	79
Disposition not clear	11	15	42
All instances	34	21	62

\* See text for description of instances included.

$$\chi^2 = 7.95; P < .01 (1 \text{ d.f.}).$$

ords, including the summary letters, were reviewed to determine how clear on paper the disposition of the patients had been made, and both the referring physicians and the key patients were interviewed to ascertain whether the patient actually returned to see the physician who had referred him.

Table 4 shows a comparison of the adequacy with which the Clinic arranged disposition and the degree to which the patient returned to see his referring physician in the 55 instances in which he should have returned during the 2- to 5-months' period of follow-up in this study, and in which physician and patient agreed in their response to the question (agreement occurred 78 per cent of the time). There are two striking features to this table. First, it may be noted that, almost 40 per cent of the time, the patient had not returned to see his referring physician during the follow-up period. The same results have been found subsequently through mailed questionnaires to representative samples of physicians and patients. Second, the evidence in the Clinic records indicated inadequate disposition on the part of the Clinic in almost half the patients—i.e., no statement or an indefinite statement about whether or when the patient

was to be seen further in the Clinic or was to return to see his family physician. As might be expected, there was a high degree of correlation between the clarity with which the Clinic had arranged for the further care of the patient and his returning or not returning to his regular physician for this care. Other factors, such as the patient's economic status, which might affect his return, seemed to be operating in only a few isolated instances in this sample, but further study is needed.

Most of the patients seen on referral at this Clinic need to be under continuing medical supervision as the treatment of their illnesses is carried out. Much of this supervision should be done and can be done by the family physician. Until this study was carried out the clinic physicians had usually assumed that most patients were returning to their family physicians for the continuing medical supervision which they needed. It seems very likely that the same false assumption might prevail in other medical centers, and certainly no clinic can know how well it is discharging its responsibilities until it critically examines the results of its efforts.

Attempts to improve the performance in our Clinic, now in progress, are being made with controlled studies employing designs analogous to those used in clinical trials of therapy.

Are these studies of the teaching clinic's role in the referral process really relevant to its educational activities? In most teaching clinics, where the student or house officer is expected to learn through having responsibility for and participating integrally in the care of patients, it would seem axiomatic that the *quality* of medical care being rendered by him and by others in the setting in which he is working would have a great effect on his learning experience. If these studies are helping to improve



the medical care of patients who come to the Clinic largely through the referral relationship, then the student, by participating, contributes to the medical care which is being improved and should himself learn something about improving the quality of medical care. Every time one of his charts is returned to him because a summary letter has not been sent, or is incomplete, or the patient's disposition has not been clearly described, or because an abnormal laboratory finding has not been adequately followed up, he learns that these too are his responsibilities as a physician.

#### SUMMARY

The processes of referral of patients and consultation between physicians can be subjected to systematic analysis and study. The simple, direct type of consultative relationship between physicians can be readily experienced by medical students and other physicians in training within the setting of the teaching center, provided some thought is given to seeing that satisfactory consultations do occur. In medical practice the arrangements for such consultations between physicians are probably frequently not optimal, but much further study of this relationship is needed.

The referral relationship between the medical center and the physicians and other medical facilities in the area served by the center can and should be improved upon at virtually every stage of the referral process, from the initiation of the referral by the practicing physician through to the final disposition of the patient's care by the medical center. The medical center has many opportunities for working through the referral process to improve the quality of medical care. Strengthening this process should simultaneously strengthen the clinical teaching program of the university center.

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# A Film Test of Clinical Skills in Medical Students\*

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The problem of measuring clinical skill has traditionally been hampered by problems of definition (2). Rather than to construct a definition, it would be easier to select a situation in which the skill or skills must function and then study performance within that situation. In medicine, one might say that clinical skill is a general dimension along which a physician's or a student-physician's behavior varies in interviewing and examining a patient for the purpose of discovering, understanding, and treating the disease of the patient. Such a situation does not include the use and interpretation of laboratory procedures, and includes more than the establishment of a diagnosis. It follows that measurement of clinical skill should be accomplished through observation and evaluation. The drawbacks to this method are numerous and well known: the method is, for example, too time-consuming and lacking in standardization at the present time to allow for large-scale measurement and comparison of medical students. Observation of the student in the clinical situation is, of course, perfectly appropriate in the teaching of clinical skills.

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The work reported here is part of a 5-year research program: The Development of Objective Measures of Medical Student Skills, supported by the Commonwealth Fund of New York; principal investigators, John T. Cowles, Ph.D. (University of Pittsburgh) and H. J. A. Rimoldi, M.D., Ph.D. (Loyola University, Chicago).

† This project was carried out while the author was Research Associate, School of Medicine, University of Pittsburgh.

The best alternative method seems to be to provide an examinee (student or physician) with a standardized—i.e., filmed—clinical situation and have him make clinical judgments about the situation. The major drawbacks to this method are: (a) it leaves unmeasured the interpersonal dimensions of the skill and (b) it measures judgments of the situation, rather than performance in the situation. Nevertheless, it is the purpose of this paper to demonstrate the feasibility of the film-test method of measuring some important aspects of clinical skill in third- and fourth-year medical students.

The materials used in the present study, are five 12- to 15-minute films of a physician interviewing and examining a patient. We shall report research on two such films, their accompanying tests, and the initial results of these tests. The present data probably represent an underestimate of the capacity of the tests to measure clinical skills, since the tests are in a relatively unrefined form.

Each film was carefully constructed so that, first, it records with high fidelity in sound and color approximately the physician's view of the clinical situation. There was no attempt made to have the camera serve as the eyes of the examining physician—i.e., the camera was not restricted to the apparent space of the physician in the film. To utilize this technique would involve a number of extraneous variables, including the tendency of the observer of the film to identify closely with the physician. It was decided to reduce this tendency so

that the observer's evaluation of the patient and the physician in the film would be based less on his artificially induced personal involvement and more on the objective data. Consequently, the camera focused primarily, but not exclusively, on the patient.

Second, each film represented an actual medical situation with a real, hospitalized, ambulant, unrehearsed patient, typical of the patients met by students in the course of their clinical clerkships. The examining physician was an experienced internist from the instructional staff of the Department of Medicine. The questions asked and the procedures followed were all appropriate to the medical nature of the situation.

Third, each film satisfied certain criteria established for the purposes of test construction. For example, each patient was selected because he exhibited a wide range of signs and symptoms. Next, the data which were provided had to be understandable by a student beginning his first year of clinical medicine. Finally, the data had to provide a variety of clinical problems to be solved by the examinee. This was achieved by the careful selection of questions and procedures put to the patient in each film. Significant and non-significant data were elicited from each patient without suggesting diagnoses, where possible. Each datum was given equal emphasis so that all integration, organization, and interpretation had to be made by the examinee. Further, clinical problems were introduced into the film by leaving certain preselected data out or by providing, where possible, true, although contradictory or inconsistent, data.

It is most important, in appraising this film technique, to note that these procedures, and distortions or truncations of the more ideal physical examination, are necessitated by the require-

ments of the film as a testing technique; and, without special instructions to the examinee, the film may take on some elements of artificiality. To minimize this source of distraction, the physicians participating in the construction of the script were asked to include only those procedures which would maintain a highly realistic impression of a clinical situation. The resulting film was, therefore, a compromise between the requirements of a medical situation and the requirements of a problem-solving test situation.

For the test itself, which was presented to the examinees following a viewing of a film, a large number of statements were written describing the events which took place during the interview and examination of the patient. These items composed the observation part of the film-test. Next, a large number of statements of interpretation of the findings were written, and these comprised the interpretation part of the film-test. All statements were rated by the examinees on a five-point continuum from "absolutely true" to "absolutely false," through "not enough information to tell." The examinee was also given the opportunity to decline to rate a statement if it involved medical information which he felt he did not have, or because he did not notice or remember the film evidence relevant to that statement. Table 1 represents the rating scale and a few examples of items used in the early versions of the test.

Thus, the examinees were given an opportunity to jump to unwarranted conclusions, refuse to draw appropriate conclusions, remain undecided, be misled, to misperceive, or to fail to notice data. A number of other kinds of questions and tasks were constructed for other purposes, but we shall not report these at this time.

Each test item (question or statement)

TABLE 1

## SPECIMEN PORTIONS OF CLINICAL PROBLEMS FILM-TEST BOOKLET

Instructions to Examinee.—The scenes you have just seen depicted an abbreviated history and physical examination of an actual patient. On the pages that follow, you will be asked to record your impressions of this patient and his illness. In Parts I and II you will be presented with a series of statements about the patient and you will be asked to judge each statement in respect to its truth or falsity on this scale:

1	2	3	4	5	6	7
ABSOLUTELY TRUE	PROBABLY TRUE	NOT ENOUGH INFORMATION	PROBABLY FALSE	ABSOLUTELY FALSE	DO NOT KNOW	DID NOT NOTICE
<i>Sample Items*</i>						
Part I (OBSERVATION):						
1. Activities involving the 8th cranial nerve are impaired.						
2. The symptom prior to weight loss was hair loss.						
3. The dyspnea, which the patient reports in his history, is also observable on physical examination.						
4. The patient exhibits a fine tremor of the hands.						
5. Respiration is abdominal in type.						
6. There is clubbing of the toes.						
Part II (INTERPRETATION):						
7. There is no evidence of an hemorrhagic disorder in Mr. K.						
8. The nature of this patient's adenopathy suggests a tubercular process.						
9. The patient has a history of frequency.						

\* None of these items is being used in the latest form of the test booklet.

was extensively pre-tested, item analyses were performed, and an operational form of the first film-test, "Mr. K." (the name of the patient), was developed with a total of 98 items. Approximately the same number was utilized on the second film-test, "Mr. S."

The criterion used for scoring each item was the consensus of an expert group. In this case the experts were preceptors from whom the students learned clinical medicine. A clear consensus for one group of experts may not hold for another group; therefore, we cannot be certain, in advance of further validation, that our scoring standards will remain the same for other groups. The criterion for consensus was approximately 70 per cent agreement among the expert group.

The criterion groups of experts consisted of full-time and part-time members of the Department of Medicine<sup>1</sup> (N = 14-22), all of whom were intern-

ists and none of whom had participated in other phases of this project. The students were members of the third- and fourth-year classes<sup>1</sup> (N = 50-100). Also tested were 35 members of the local chapter of the Academy of General Practice.

## RESULTS

As shown in Table 2, it is apparent that the (Kuder-Richardson) reliability coefficients are sufficiently high to warrant further development of these tests.

There is probably no usable external validity criterion for clinical skill as yet developed—certainly not existing ratings or grades in medicine, although there is some promising work on ratings now being done (1). As seen in Table 3, correlations between scores on the film tests and grades in medicine are not high. We can assume, however, that,

<sup>1</sup> University of Pittsburgh School of Medicine.

TABLE 2  
MEANS, STANDARD DEVIATIONS, AND RELIABILITY COEFFICIENTS  
FOR ALL GROUPS, BOTH FILM TESTS

		Faculty	G.P.'s	Fourth-Year Class	Third-Year Class
1st Test: Mr. K.					
Part I	Mn	90.2	90.4	85.5	84.1
(Observation)	SD	12.79	17.85	12.32	9.46
Part II	Mn	45.0	31.8	33.9	29.9
(Interpretation)	SD	5.34	6.86	5.74	6.53
Total	Mn	135.2	122.2	119.4	114.1
	SD	15.56	19.32	13.30	13.65
$r_{11}$ Part I		.93	.96	.92	.87
$r_{11}$ Part II		.76	.88	.81	.86
$r_{11}$ Total		.92	.95	.89	.90
2d Test: Mr. S.					
Part I	Mn	49.0		42.9	42.8
(Observation)	SD	8.50		9.30	8.55
Part II	Mn	40.7		37.4	36.3
(Interpretation)	SD	9.88		9.40	7.44
Total	Mn	89.7		80.3	79.0
	SD	13.77		14.30	11.30
$r_{11}$ Part I		.91		.94	.81
$r_{11}$ Part II		.95		.91	.88
$r_{11}$ Total		.92		.92	.88

whatever the skill is, it can be expected to increase, by and large, with increasing experience. Experts presumably have a maximum amount of the skill, and students, with successive increases in experience, successively increase their approximation of expert performance. We shall, therefore, take as our criterion for validity of the test *differences in scores* such that the least experienced group shall have the lowest score and the most experienced group shall have the highest score. We shall also require that mean scores for any group be less differentiable from the experts' performance as that group gains in experience.

The total scores on Test I for third-year students, fourth-year students, and faculty differ from one another in the predicted direction (Table 2). An analysis of variance yielded an *f*-ratio significant at the 1 per cent level, with significant gaps between every group.

The Academy of General Practice, the intermediate group, scored significantly less than the faculty and almost significantly better than the seniors. The first criterion—namely, differences between the various groups according to the level of experience—has been satisfied by the first film test. If we break down the total score into its component parts (Part I, observations, and Part II, interpretation), a slightly different picture emerges. First, there were no significant differences between means of any of the groups on the observation component of the test. However, all the differences are in the predicted direction. There is a significant *f*-ratio on the interpretation part, and there are significant gaps between all levels of subjects on this part of the test.

The non-discriminability of the observation part of this test may be partly due to a relatively small number of items

TABLE 3  
CORRELATION BETWEEN  
FILM TEST, MEDICAL APTITUDE SCORES, AND RANK IN MEDICINE

		MCAT V	MCAT Q	MCAT Sci	Percentile rank in Medicine	GPA
Fourth-Year	1st Test Total (Mr. K.)	-.04	.06	.12	.07	.02
	2d Test Total (Mr. S.)	-.14	-.17	-.07	.08	
Third-Year	1st Test Total (Mr. K.)	.22	.27	.32	*	.03
	2d Test Total (Mr. S.)	.13	.15	.20	*	

\* Percentile ranking had not yet been established for the third-year class.

of sufficient difficulty. For a number of reasons, this writer feels that the observation part of the test has a great deal of potential. This confidence is based on anecdotal evidence (students appear to see less than physicians) and on a theoretical expectation that perceptual changes (e.g., lower thresholds) occur with changes in the experiences of the perceiver. An attempt was therefore made to write more difficult items for the second film test. As we shall see below, this attempt was successful. The results of the second film test, "Mr. S.," administered to the same group 5 months later (thus third-year students have 5 months' experience, and fourth-year students have 14 months' experience), again showed differences in the predicted direction. Analysis of variance yielded an *f*-ratio significant at the 1 per cent level, although the gap between the student groups did not reach significance. Further analysis revealed a difference between the faculty and the third-year students on the interpretation part significant at the 5 per cent level. On the observation part, significant differences at the 1 per cent level were found between the faculty and each group of students, although there were no differences between the student groups. Apparently, the additional 5 months of

clinical experience gave the third-year students an opportunity to close the gap between themselves and the fourth-year students, and to catch up to the faculty to a moderate extent on the interpretation part.

To investigate the power of the film test at the lowest level of clinical experience, the third-year class was further evaluated. At the time of the first testing, only one-fourth of the class had been assigned to the medical service, and they were selected for this assignment randomly. These students had, therefore, 1 month of clinical medicine, whereas the other three-fourths of the class had no clinical experience whatever. When these two groups were compared, significant differences on every part of the test were found in favor of the students with 1 month of experience. When the second film test was administered to this class, 5 months later, all differences on every part of the test had entirely disappeared. As noted previously, there were no differences between this group with 5 months of experience and the class ahead of them with 14 months of experience. Clearly, the second film test, "Mr. S.," lacks the power to differentiate between groups within the middle range of experience, whereas the first test adequately distinguishes between students in the



lowest range and between the faculty and all student groups.

Correlations between total scores on the two tests are low for both student classes: .33 for one class and .35 for the other. There are a number of possible reasons for this low relationship between the two tests; for example, the two tests may be measuring quite different functions, or the students may develop their skill at uneven rates. This author favors the latter, because this seems to characterize his experience with students. It is plausible when one considers that cognitive learning is probably well described as a series of successive insights and plateaus. Uneven development ought to be the rule, resulting in low inter-test correlation coefficients. However, data to decide this question have not yet been collected.

On the whole, the correlations of all parts of both tests with college grade point average, grades in medicine, the Medical College Admission Test (Verbal, Quantitative, and Science sections) are relatively low (see Table 3).

Clearly, the present tests measure functions not closely related to the academic knowledge as identified by medical aptitude tests or to the characteristics of students on which faculty base their ratings.

#### SUMMARY

We have constructed objective tests based on sound-color films of highly planned and realistic situations in medicine. Criterion scores were established on the basis of faculty consensus. It was found that students achieved significantly less than the faculty, and the first test appears to be a powerful discriminator at the lower levels of the skills measured. However, the tests do not yet appear to discriminate within the middle range of these skills.

A word of caution should be added con-

cerning the use of these tests on groups at other medical schools. Criterion scores were based on the consensus of a University of Pittsburgh faculty group and should not be considered representative either of the entire faculty of that school or of faculty groups elsewhere. Although the same item pool could be used in applying these tests to other medical schools, entirely new criterion scores should ideally be developed at each school. This limitation, on the other hand, suggests a number of intriguing issues. Variations in these criterion scores, in item selection, or in student performances from school to school, could yield objective evidence on the differences in medical atmosphere among the schools. Further, an analysis of the kinds of items on which faculties could not reach consensus would be quite revealing. An analysis of the reasons why students are incorrect in their answers (we are now making such an analysis) would add great depth to the study of the cognitive development of students and would also make possible more precise evaluation of experimental programs and curriculum changes. In other words, despite the restrictions on generalized use of these tests, it is anticipated that they are applicable to a wide range of evaluational problems.

#### ACKNOWLEDGMENTS

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## Changes in Clinical Judgment as a Function of Psychiatric Education\*

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The problem of how to evaluate the acquisition and development of "clinical skill" remains a major concern of those involved with the teaching and training of medical students. In the course of his training, the medical student must not only absorb an immense fund of information but must also learn how to apply this knowledge with sensitivity and judgment to the wide range of human problems he will encounter. Thus, the faculties of medical schools are interested in knowing not only what facts a student has amassed but also whether or not he can appropriately bring them to bear in the making of crucial decisions concerning his patients. The evaluation and assessment of students' abilities are of consequence for other reasons as well. Such information provides data on the basis of which medical educators can evaluate the effectiveness of their teaching techniques as well as the extent to which the goals of their teaching programs have been realized (4).

\* This paper represents one outgrowth of the continued interest of this department in problems of medical education. It reflects the long-term concern of Prof. John Romano with the need for constant evaluation of teaching in the field of Psychiatry. The authors would also like to express their gratitude to Prof. George Engel for his encouragement throughout this research.

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The difficulties involved in assessing clinical skill in psychiatry are especially perplexing ones because of the relative absence of clear-cut criteria of "good" as opposed to "poor" performance. In many schools, the evaluation of a student's clinical performance takes the form of ratings made about the student by his instructors. Such ratings, however, are obviously subject to many possible contaminating influences, among which may be included such factors as the possible unreliability of ratings, the incomparability of patients assigned to various students, and the unequal opportunities for contact between instructors and their students. For a number of years this department has been engaged in various attempts to investigate and improve the efficiency of methods for evaluating student performance. To this end, there have been employed a number of techniques, including analyses of examinations in psychiatry, the development of various rating procedures for assessment of clinical skills, and collection of student reactions to the curriculum. Recent papers by Stoller and Geertsma (3, 5) have described a procedure designed to obtain more objective assessments of clinical judgment in psychiatry. These authors suggest that this procedure is capable of measuring something other than textbook learning and that it is relatively independent of mere test-taking skills. The present study

represents an attempt to extend the work of these authors and to apply this technique to a systematic investigation of the development of clinical psychiatric judgment as a function of formal psychiatric training.

The judgments made about a patient by senior-faculty psychiatrists were assumed to represent an operational definition of a "correct" and "accurate" description of that patient. Students at different levels of training were then asked to make similar judgments about this same patient. It was postulated that growth in clinical judgment would be reflected in an increasing capacity of the students to perform like their teachers. Student ratings were compared with faculty ratings on a global, over-all basis, as well as in terms of a number of discrete areas of judgment tapped by the ratings.

Thus, the current report is concerned with the following questions:

1. Does an objective approach to the assessment of clinical judgments reveal a significant growth in judgment as a function of increments in formal psychiatric training?
2. What can such procedures disclose concerning the process of development of clinical skills and how does this development relate to the nature of the teaching program?

#### PROCEDURES

The assessment procedures utilized were similar to those employed by Stoller and Geertsma, but, since certain significant variations were introduced, the procedure will be described in some detail. The clinical material consisted of a single tape recording of an initial psychiatric interview with a 31-year-old female out-patient applying voluntarily for treatment at a psychiatric clinic. All respondents heard this same interview, which was approximately 45 minutes in length. Respondents were provided with

a transcript of the interview and were allowed to make any notes they wished, but the transcripts were collected before the ratings were to be made. The information given before the recording was played consisted simply of the age and sex of the patient, a statement as to the voluntary nature of this initial consultation, and the instructions to "listen carefully to this interview because we will ask you to make some evaluations of the patient immediately following." The procedure was described to the respondents as "an investigation of the ability to evaluate patients on the basis of a recorded interview."

Following the playing of the recording, respondents completed a brief biographical data sheet and were then presented with the rating questionnaire. This questionnaire consisted of a series of 303 psychiatrically relevant statements which covered a wide range of content and which involved evaluations of a patient from a number of different points of view. Each statement represented a potential description of some aspect of a psychiatric patient. These statements were, except for minor grammatical changes, identical with those used by Stoller and Geertsma. Each statement was rated by the respondent on a seven-point scale, in terms of "how characteristic this statement is of the patient you have just heard interviewed" (0 = not at all characteristic, 6 = very characteristic). No time limit was imposed on the ratings, and respondents were free to utilize any point along the scale, only the end-points of the scale having been defined as above.

#### SUBJECTS

Ratings were obtained from the following seven groups of individuals:

1. Fifteen members of the senior psychiatric faculty, all engaged to a greater or lesser extent in the undergraduate teach-

ing program, who served as the "expert" group. The mean age of this group was 40 years, and they had an average of 10 years of psychiatric training and experience.

2. Seventeen psychiatric residents at varying stages of their specialty training (the mean age of this group was 29 years). No attempt was made to differentiate this group further in terms of different levels of training because of the relatively small number of individuals involved.

3. Nine interns currently assigned to the psychiatric service (mean age, 26 years; seven males, two females). This was a rather heterogeneous group, with quite divergent backgrounds of undergraduate psychiatric training.

Ratings of the above three groups were obtained in a single session. Four groups of students also performed ratings under the following conditions:

4. A group of 72 freshman medical students (mean age, 21 years; 66 males, six females) tested during the early weeks of their first semester in medical school—i.e., *before they had received any formal psychiatric training.*

5. A group of 68 second-year medical students (mean age, 23 years; 66 males, two females) tested during the early weeks of their second year in medical school—i.e., *after they had completed one full year of preclinical psychiatric training.*

6. A total of 71 third-year students (mean age, 25 years; 69 males, two females) tested in small groups in the first week of their third-year clinical assignment in psychiatry, i.e., *after they had completed 2 years of preclinical training in psychiatry.*

7. A total of 51 fourth-year students (mean age 26 years; 48 males, three females) tested in small groups during the last few days of their fourth-year clinical assignment in psychiatry—i.e., *after they had completed 2 years of preclinical and 2 years of clinical training in psychiatry.*

To describe the student groups more fully, it is necessary to outline briefly the nature of the undergraduate curriculum in psychiatry at the University of

Rochester School of Medicine. All students receive formal psychiatric training during each year of the 4-year medical school program.

The first-year preclinical course consists of weekly 2-hour didactic lectures and demonstrations designed to acquaint the student with fundamental principles of human behavior, and with basic psychological and social factors in human biology. Special emphasis is also placed on the accurate perception and observation of behavior.

The second-year preclinical course also consists of weekly 2-hour didactic lectures and demonstrations intended to present an intensive survey of personality development and psychopathology from both a biologic and psychoanalytic point of view.

The third- and fourth-year programs entail, respectively, 5- and 4-week clinical clerkships on the various divisions of the psychiatric service. Students are given the responsibility for examination and treatment of patients under the supervision of psychiatric house staff and faculty. Students attend intensive lectures and seminars on various aspects of clinical psychiatry during these clinical clerkships.

#### CRITERION ITEMS AND CRITERION SCORES

In comparing ratings by students with those made by faculty, it is obvious that one can legitimately use only those items on which faculty members were in substantial agreement. There are, of course, many reasons why experienced psychiatrists may disagree with one another in their ratings of various aspects of a patient's behavior. The items may be ambiguous, the particular sample of clinical material may yield little information in regard to certain questions, an item may involve too great an inferential leap from observable data, and so forth. For the purposes of the present

TABLE 1  
MEAN CORRELATIONS OF SUBJECT GROUPS  
WITH CRITERION SCORES, AND PROBABILITY VALUES FOR "t" TESTS  
OF THE SIGNIFICANCE OF DIFFERENCES BETWEEN SUBJECT GROUPS

	Mean r	Residents	Interns	Seniors	After 2 yr.	After 1 yr.	Freshmen
Faculty	.88	.001	.001	.001	.001	.001	.001
Residents	.77		.02	.05	.001	.001	.001
Interns	.66			N.S.	N.S.	N.S.	.05
Seniors	.71				N.S.	.001	.001
After 2 years	.69					.01	.001
After 1 year	.64						.001
Freshmen	.57						

study, an item was accepted as meeting the criteria of "substantial agreement" if, and only if, all the following three requirements were met:

1. The ratings of at least two-thirds of the fifteen faculty members fell within two adjacent points on the 7-point scale.
2. At least six faculty members assigned a rating in one of the two adjacent scale points.
3. There should be no more than two faculty members giving a rating at any point on the scale more than 1 point distant from the two adjacent points of cluster.

It was found that, of the 303 original items in the rating questionnaire, exactly 100 items met all three of the foregoing requirements, and it was only this group of 100 items that was used in all subsequent analyses. For each of the 100 items, a score was derived by computing the weighted mean of the two adjacent points at which the "expert" ratings had clustered. This *item criterion score*, which essentially represented the mean rating assigned to an item by faculty members, constituted the reference point against which student ratings were compared.

#### RESULTS

An I.B.M. 650 electronic computer was utilized in obtaining a Pearson correlation between each subject's ratings of the patient, and the criterion scores derived from the senior-faculty ratings.<sup>1</sup> From these individual subject correla-

tions, mean correlations for each of the subject groups were obtained and these are presented in Table 1.<sup>2</sup> Because the senior-faculty ratings were originally used in the derivation of criterion scores, it was necessary to correct the individual faculty correlations by a procedure which eliminates the spurious inflation of the correlation coefficient due to part-whole overlap (2).

Analysis of variance applied to these mean correlations (in *z* score form) revealed a highly significant over-all difference between the seven subject groups ( $P < .001$ ). It was, therefore, permissible to use "t" tests for testing the significance of the differences in mean correlation between various subject groups. These results are also presented in Table 1 in terms of the probability values obtained. We have postulated that increases in correlation with the faculty group represent improvement in clinical judgment. It can be seen, therefore, that there is a significant increment in performance between entering freshmen students and students who have completed the first year. Similarly, a significant difference in correlation occurs between groups who

<sup>1</sup> Special thanks are due Dr. Howard Iker for his assistance in the statistical analyses and for his guidance in the use of computer techniques.

<sup>2</sup> All correlations were converted to *z* scores whenever statistical operations were performed on the data.

TABLE 2  
MEAN CORRELATIONS WITH CRITERION IN THE  
FIVE CONTENT AREAS OF THE INVENTORY

Category	Faculty	Residents	Interns	Seniors	After 2 yr.	After 1 yr.	Freshmen
1. (Descriptive)	.90	.80	.64	.75	.72	.70	.60
2. (Diagnostic)	.92	.83	.68	.72	.71	.59	.51
3. (Interp. Rel.)	.81	.61	.48	.60	.64	.57	.55
4. (Diagnostic)	.78	.66	.56	.65	.60	.55	.43
5. (Traits)	.87	.67	.59	.67	.71	.68	.68

TABLE 3  
PROBABILITY VALUES OF "t" TESTS OF DIFFERENCES BETWEEN  
SUBJECT GROUPS ON CATEGORY 1 (DESCRIPTIVE)

	Residents	Interns	Seniors	After 2 yr.	After 1 yr.	Freshmen
Faculty	.01	.001	.001	.001	.001	.001
Residents		.05	N.S.	.02	.01	.001
Interns			N.S.	N.S.	N.S.	N.S.
Seniors				N.S.	N.S.	.001
After 2 yr.					N.S.	.001
After 1 yr.						.01

have had 1 and 2 years of training. No significant increment is observed between the students who had completed 2 years of medical school and the fourth-year seniors who had completed the entire medical school curriculum. There is, however, a significant difference between seniors and the resident group, and between residents and the faculty. The small group of interns seems not to fall easily into the regular progression of increase in correlation, and possible interpretations of this will be discussed later. Their performance significantly exceeds only that of the entering freshman group. In general, then, statistical analysis of these mean correlations reveals a progressive increase in correlation as one moves along a continuum of education and training from entering freshman to highly experienced senior psychiatrists. Thus, it would seem that increments in training are indeed reflected in increased adequacy of clinical judgments.

It was also felt that further valuable information could be obtained from an

attempt at measurement of the relative degree of growth occurring in specific areas of clinical judgment. Therefore, the 303 items of the inventory were sorted into five content categories which were selected by the authors as generally reflecting the content areas covered in the inventory statements. The categories were defined as follows:

1. *Descriptive*.—statements descriptive of patient's overt behavior and ongoing affective states during the interview.

2. *Diagnostic*.—statements concerned with diagnosis, prognosis, or treatment.

3. *Interpersonal relationships*.—statements concerned with the nature and quality of the patient's interpersonal relationships.

4. *Dynamics*.—statements concerning underlying needs, conflicts, and ego-defensive operations.

5. *Traits*.—statements involving generalized nontechnical descriptions of personality traits and characteristics.

Four psychologists and two psychiatrists independently sorted each of the 303 items into the five categories. An item was finally included in any category



TABLE 4  
PROBABILITY VALUES OF "t" TESTS OF DIFFERENCES BETWEEN  
SUBJECT GROUPS ON CATEGORY 2 (DIAGNOSTIC)

	Residents	Interns	Seniors	After 2 yr.	After 1 yr.	Freshmen
Faculty	.01	.001	.001	.001	.001	.001
Residents		.05	.02	.005	.001	.001
Interns			N.S.	N.S.	N.S.	N.S.
Seniors				N.S.	.005	.001
After 2 yr.					.005	.001
After 1 yr.						N.S.

TABLE 5  
PROBABILITY VALUES OF "t" TESTS OF DIFFERENCES BETWEEN  
SUBJECT GROUPS ON CATEGORY 3 (INTERPERSONAL RELATIONSHIPS)

	Residents	Interns	Seniors	After 2 yr.	After 1 yr.	Freshmen
Faculty	.005	.001	.001	.001	.001	.001
Residents		N.S.	N.S.	N.S.	N.S.	N.S.
Interns			N.S.	.05	N.S.	N.S.
Seniors				N.S.	N.S.	N.S.
After 2 yr.					.05	.02
After 1 yr.						N.S.

upon which at least four of the six raters independently agreed. Where the item sortings did not indicate a clear-cut category preference by the judges, the authors arbitrarily resolved this by deciding in favor of their own judgment as to the item placement. With the use of the 100 selected items, it was then possible to compute five separate correlations for each of our subjects, each correlation reflecting the subject's agreement with criterion scores for items in a discrete content category. Mean correlations were again computed for each of the subject groups on each of the content categories. The matrix of mean correlations is presented in Table 2. A more complex analysis of variance was performed testing the over-all differences, not only between subject groups, but also between content categories as well as the interaction between these two variables. The results of the analysis indicated not only a significant over-all variation between groups of subjects ( $P = <.001$ ), and between content categories ( $P = <.001$ ), but, in addition, a significant

variation in mean correlation as a function of the interaction between the above two variables ( $P = <.02$ ). This significant interaction may be interpreted as indicating that the points of significant improvement in ability to make clinical judgments may differ as a function of the content of the judgments.

The significance of the differences between subject groups within each category was again examined with "t" tests. These data are presented in Tables 3-7 in terms of the probability values obtained. Our focus in the analysis of these results was on the influence of increments in training on ability to make judgments within the various content areas. Thus, in Category I (descriptive), it is noted that a significant increase in ability occurs after the first year and that no further significant change appears until the resident level is reached. Residents significantly exceed the performance only of the interns, second-year students, and those below them in the continuum. It is noteworthy that, whereas there is apparently a consistent and

TABLE 6  
PROBABILITY VALUES OF "t" TESTS OF DIFFERENCES BETWEEN  
SUBJECT GROUPS ON CATEGORY 4 (DYNAMICS)

	Residents	Interns	Seniors	After 2 yr.	After 1 yr.	Freshmen
Faculty	.02	.01	.005	.001	.001	.001
Residents		N.S.	N.S.	N.S.	.05	.001
Interns			N.S.	N.S.	N.S.	N.S.
Seniors				N.S.	.005	.001
After 2 yr.					N.S.	.001
After 1 yr.						.005

TABLE 7  
PROBABILITY VALUES OF "t" TESTS OF DIFFERENCES BETWEEN  
SUBJECT GROUPS ON CATEGORY 5 (TRAITS)

	Residents	Interns	Seniors	After 2 yr.	After 1 yr.	Freshmen
Faculty	.001	.001	.001	.001	.001	.001
Residents		N.S.	N.S.	N.S.	N.S.	N.S.
Interns			N.S.	N.S.	N.S.	N.S.
Seniors				N.S.	N.S.	N.S.
After 2 yr.					N.S.	N.S.
After 1 yr.						N.S.

progressive increase in ability along the continuum of training, a point of significant improvement occurs in the first year and again in the period between residency and the status of senior psychiatrist. The results of the data on Category 2 (diagnostic), as shown in Table 4, provide a somewhat different picture of growth. The first significant point of improvement in performance here apparently occurs in the second year, but there is also a significant difference between the fourth-year students and the residents, and between residents and faculty. It is apparent, however, that, as with Category 1, there is a regular increase in correlation throughout the progression from freshmen to faculty. Category 3 (interpersonal relationships), depicted in Table 5, presents a similar picture of significant change in the second year. However, no further significant differences are found other than the difference between faculty and residents. The results of the analysis of Category 4 (dynamics) reveal three points of significant change. As can be seen in Table 6, first-year students are significantly

better than freshmen, fourth-year students perform significantly better than first-year students, and the next point of significant improvement is again reflected in the consistent superiority of faculty over the residents. The results in Category 5 (traits), shown in Table 7, reveal most graphically the manner in which the interaction between degree of training and categories occurs. Here we find no differences between the groups other than that of the superiority of faculty over all other groups. The trend of regular growth observed in the previous categories seems not to be present.

#### DISCUSSION

Earlier, we postulated that changes in clinical judgment can be evaluated by measuring the degree of agreement between a subject and criterion judgments of experienced psychiatrists. It is evident from our data that measurable and significant growth occurs in this ability as a result of psychiatric training. This growth continues regularly and significantly throughout the progression through medical school and postgraduate

training in psychiatry. In a previous study utilizing ratings of filmed psychiatric interviews, Geertsma (3) obtained correlations of .54 and .63 between the performance of entering freshman medical students and criterion scores obtained from experienced psychiatrists. Correlations with criterion scores of .70 and .73 were obtained from fourth-year senior medical students, and correlations of .73 and .77 were obtained from a group of psychiatric residents. The results of the first part of the present study reveal remarkably similar correlations (see Table 1) and can be considered a rather striking replication of Geertsma's data. The present data, however, fill in the gaps in their results which were obtained only with entering freshmen, fourth-year students, and residents. The obtained similarity in results is even more meaningful in light of the fact that the clinical material we presented for evaluation was different and the mode of presentation we employed (a tape recording) different from their use of filmed interviews. Criterion items selected by us were, moreover, generally not the same as those selected by Stoller and Geertsma for their patients, and therefore the agreement between our data and theirs cannot be ascribed to stereotyped ratings of the same items by all subjects. The further implication is that the rating procedure used has considerable stability in that the results obtained are apparently not a unique function of the patient material presented, the medium of presentation, or the mode of evaluation utilized.

The failure of the interns to perform in a fashion consistent with the general evidence of progressive growth in clinical judgment as a function of training is meaningful when we note that, of the nine interns in the sample, only two received their medical training at our university. It may be inferred that the

interns could not respond to the patient in a manner similar to that of our senior faculty, because they had had no opportunity to learn the general approach to patients characteristic of our Department of Psychiatry. It may also be true (although we have no data on this point) that the interns had, in general, received less intensive training in psychiatry than our own medical students.

The data suggest that no significant change in the ability to make clinical judgments occurs between the pre-clinical and clinical years in medical school. It is important to point out, however, that what was being tested was, in the main, a student's capacity to evaluate and make judgments from data presented to him. It is apparent that our technique does not assess the student's ability to elicit data or to perform skillfully in many other aspects of a clinical-interview situation.

When we examine our results in relation to the content of our curriculum in psychiatry, it would appear that the growth in many of the content areas is largely a function of the stated content and goals of these courses. We note that the initial growth in capacity to observe accurately and describe the patient's interview behavior follows the first year course in which the enhancement of this ability is a major goal. Significant growth in capacity to make diagnostic judgments first appears following the second-year course in which the content is largely directed at this area of psychiatry. Meaningful changes in ability to assess the patient's dynamics occur after the first year (which may reflect the influence of the initial introduction to certain dynamic concepts) and appear again after the fourth-year clerkship where this is clearly a major objective of the training.

It is interesting to note that judgments in one of our content areas seem

unaffected by the 4 years of medical school. Items in this area (traits) were largely nontechnical and oriented to aspects of human behavior which apparently require little sophistication for accurate judgments to be made. The correlations in this area may suggest the presence of a baseline capacity for describing people in lay terms which is sharpened only by very considerable clinical experience. These results, however, may be alternatively interpreted as reflecting the ability of experienced clinicians to convert sophisticated clinical insights about a patient into lay terminology.

The results in Category 3 (interpersonal relations) are somewhat difficult to relate to the curriculum content, since the significant growth occurs following course content which is not clearly related to this area. We cannot conclude that the curriculum exerts any influence here, other than possibly that which might occur as a result of continued contact with problems of personality development and their description. However, as with Category 5, the progressive increment in correlation also does not appear in this category. There is the possibility that the significant difference obtained occurred only by chance, and that here, too, we are dealing with an area which is not significantly influenced by the educational process.

A major limitation of the present study lies in the fact that all our data were derived from the responses of our subjects to only one patient. It would be important, in investigating the reliability of our results, to repeat the study on other patients presenting different clinical and dynamic features. This would be especially relevant with respect to the investigation of differential growth in various areas of clinical judgment, since conclusions regarding growth in specific skills may well be very much

determined by the nature of the patient sample—e.g., the ability to diagnose acute schizophrenia may develop earlier than the ability to recognize the presence of certain subtle character defects.

We have already investigated certain correlates of the capacity to make clinical judgments. These investigations have included such variables as premedical major, personality test data, and data on over-all performance in psychiatry during preclinical and clinical years as measured by examinations and clinical ratings by faculty. These data will be presented in a subsequent publication (1). Plans for further investigation also include the utilization of this technique in exploring the relative amounts of information available when the data are presented in different forms. To this end, we plan to compare the responses to a tape recording with responses to the same interview presented on film. Hypotheses relating to the relative information value of an opportunity to observe the patient's expressive movements, etc., are thus susceptible to test.

#### SUMMARY

This study represented an attempt to utilize a relatively objective technique as a method for studying the development of certain aspects of clinical skill in psychiatry. The procedure involved the use of a single tape-recorded psychiatric interview with a patient. The recording was played to a number of groups of students who were then asked to rate the patient in terms of a large group of psychiatrically relevant statements. Senior psychiatric personnel also rated the recorded patient, and these ratings were used as a criterion against which the ratings of students at different levels of training were compared. It was assumed that the judgments of experienced senior psychiatrists operationally defined the correct description of the patient,

and it was further assumed that a basic aim of clinical teaching is to enhance the capacity of students to perform increasingly like their teachers. The capacity to make ratings of various aspects of the patient's behavior was also differentially investigated. The results indicated that a significant and progressive increment in ability to make clinical psychiatric judgments occurs as a function of a continuum of psychiatric training beginning with the first year of medical school through a residency in psychiatry. Furthermore, it would seem that improvement in clinical judgment is not an entirely uniform process and that judgment in various areas may develop at a differential rate. The capacity to make judgments in the areas of description, diagnosis, interpersonal relationships, dynamics, and traits was ex-

amined, and it was noted that, in the main, growth in performance in these areas reflected the influence of the content of the curriculum in psychiatry.

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## A Study of College Seniors Who Abandoned Their Plans for a Medical Career\*

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The number and caliber of applicants to the nation's medical schools are falling. After the decline from the high point of the post-World War II period, the number of applicants leveled off. During the late fifties, when the number of new applicants should have increased corresponding to the increased birth rate some 20 years previously, there was a new fall of 6 per cent in applicants during 1959-1960, as compared with the number of applicants in 1956-1957 (2). Many and diverse reasons are assigned for the fall: the length of medical education, the inordinate expense, and the competition for manpower from other fields, such as industrial research, engineering, the physical sciences, etc. There is general agreement that, despite the increasing number of students going to college, far too few of them are continuing into graduate school to fulfill the needs of our expanding population for physicians, scientists, engineers, and teachers.

Although a definitive national study is needed to determine the factors lying behind the fall in the number and cali-

ber of medical school applicants, such a study cannot be completed in a short time. In the interim, it seemed important to determine in one college, with a large number of premedical students (Harvard College), the reasons for the failure to go on to medical school on graduation of students who had entered college with the idea of pursuing a medical career. It was realized that a study in a liberal arts college with a large number of premedical students might not be valid for the nation as a whole because of the different types of students in various colleges, but still such a study might shed some light on the factors which might be operating in liberal arts colleges in general. These colleges are among the chief sources of supply of medical students.

It was also realized that such a study would not shed light on the group of students who did not consider medicine at all for financial or other reasons, or who, having considered it in secondary school or after matriculation to college, had discarded the idea. It is still true that medicine holds the top spot as the most desired career in the ideals of secondary school seniors and their parents (3). It is thus especially pertinent to study students who enter college with the idea of becoming physicians and then change their minds.

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## METHOD

The Dean's Office at Harvard College supplied from their records a list of all seniors in the College (class of 1960) who had not applied to a medical school but who had signified their intent to go to medical school at the time of their matriculation 4 years previously.

On this list appeared 91 students, of whom 62 were seniors in good standing. The fate of the other students who entered the college with the goal of medical school may be seen in Table 1.

From the list of 62 seniors in good standing who had signified their intent of going to medical school on matriculation but who had not applied to medical school 4 years later, 50 were selected by random numbers. A letter was written to each of these students asking him to come for an interview with a member of the medical school admission committee concerning his decision not to pursue a medical career. Forty-six of the students responded to the letter and were interviewed individually for 30 minutes to 1 hour each during the spring of their senior year. The interview was a focused one in which they were asked to tell about the process by which they changed their minds about pursuing a medical career. For the most part they were allowed to talk freely; a number of questions were asked at the end of the interview on points not covered by the student. Note was made of the following factors in a student's decision not to pursue a medical career: (a) finances, (b) length of medical education, (c) the image of the physician, (d) the image of the Harvard premedical student, (e) place of residence, (f) parental occupation, (g) type of secondary school attended—i.e., whether public or private.

Additional data were obtained from the students' college records—i.e., their college grades, their college board scores, and the number of years of study of

TABLE 1

SENIORS AT HARVARD COLLEGE WHO ON MATRICULATION DAY SIGNIFIED THEIR INTENTION OF PURSUING A MEDICAL CAREER AND WHO AS SENIORS HAD NOT APPLIED TO MEDICAL SCHOOL

Total number of students:	91
Graduating:	62
Students still in the College but without enough credits to graduate	9
On Leave of Absence	5
Transferred to other institution	1
Connection severed with College	14

mathematics in secondary school. The placement office supplied data on whether or not they had received scholarship aid during their college careers.

Two of the 46 students were eliminated from the statistical analysis of the data, since they never pursued any premedical subjects, and their selection of medicine as a career was but one of many temporary choices of occupation during secondary school and college.

## RESULTS

*Finances.*—Twelve (27 per cent) of the 44 students were receiving scholarship aid from the college or from some national organization such as the National Merit Scholarship Corporation. For the class as a whole, approximately 35 per cent of the students were receiving financial aid.

In this group, the need for financial aid was not so great as for students in the college as a whole. When asked about this problem, almost all the students stated that financial considerations did not play a part in their decision not to go to medical school. They were sure that, since they had been able to finance themselves at Harvard College, they would be able to do so in medical school. Only one student stated that his poor grades discouraged him from applying to a medical school because he knew he would not get a scholarship.

TABLE 2

THE RELATIONSHIP OF THE MAT (QUANTITATIVE APTITUDE) SCORES AND THE SAT (VERBAL APTITUDE) SCORES ON THE COLLEGE BOARDS TO GRADES IN THE SCIENCES

	MAT > 600	MAT < 600
High science grades	16	2
Low science grades	5	21
$\chi^2 = 17.9889$	P > .001	
	SAT > 600	SAT < 600
High science grades	9	9
Low science grades	8	18
$\chi^2 = 0.9471$	.50 > P > .30	

Over 70 per cent of these students' fathers were financially able to pay their expenses in medical school.

*Length of a medical education.*—The length of medical education was not seen as a deterrent by any of the students. Many were planning careers in the sciences, law, or the social sciences, and felt that it would be a long time before they were fully launched.

*Science grades.*—It was our hypothesis before beginning these interviews that inability to make high grades in the science courses might be a major factor in some students' decisions not to continue their premedical education. This was quickly confirmed by the interviews. It was the chief reason in eighteen (41 per cent) of the students. We then classified the grades in the sciences of all the students in the sample into two categories on the basis of the following criteria:

*High science grades:* An average grade in science courses of B or higher.

*Low science grades:* An average grade in science courses of less than B.

The great majority of students classified as having High Science Grades had averages considerably higher than B, and many classified as having Low Science Grades had considerably lower than a B average. Almost all students

TABLE 3

THE RELATIONSHIP OF THE NUMBER OF YEARS OF MATHEMATICS STUDIED IN SECONDARY SCHOOL TO SCIENCE GRADES IN COLLEGE

	SECONDARY SCHOOL	
	4 years Math	3 years Math
High science grades	16	2
Low science grades	8	18
$\chi^2 = 12.2418$	P > .001	

had pursued at least two science courses; a number of them had completed their medical school requirements.

Twenty-six of the students were classified as having Low Science Grades and eighteen as having High Science Grades. One important factor in explaining the science grades could be their scholastic aptitudes as measured by their college board scores on the SAT (Verbal Aptitude) and MAT (Quantitative Aptitude). We divided the scores on them into those above 600 and those below 600, with the results shown in Table 2.

The quantitative aptitude scores (MAT) were significantly related to the science grades, but the verbal aptitude scores (SAT) were not.

Closely related to the problem of quantitative aptitudes and grades in the sciences is the relationship of the study of mathematics to science grades. Table 3 shows a highly significant relationship between the number of years of mathematics in secondary school and college grades in the sciences, the students with 4 years of mathematics in secondary school having the higher grades.

#### THE IMAGE OF THE PHYSICIAN

In pursuing a career, the young student is often spurred on to achievement by his image of the kind of person he hopes to become. When medicine is chosen as a career, the image or stereotype the neophyte has of the physician assumes great importance. If the image

is a favorable one, the young man has a strong inner motivating force in his life; an unfavorable one has the reverse effect on motivation.

In interviewing these students, we were interested in their images or stereotypes of the physician. We classified the data into two categories: favorable image and unfavorable image.

*Favorable image.*—Twenty of the 44 students were classified as having "favorable" images of the physician. These young men described doctors as kindly, fatherly men, interested in people, service-oriented, devoted to duty, and skilled in administering to the sick. None of these students emphasized the physician as a scientist.

Two of these students no longer plan to study medicine because they found something else more interesting.

Eighteen of this group left medicine because of difficulties in making good grades in the sciences. These men came to Harvard with the idea of becoming doctors, usually without parental pressure, and most often from a small town. They quickly found that they could not make good grades in the sciences—i.e., they were making C, C−, or a D+. They then abandoned their medical school plans because they felt that they would be unable to get into a medical school of their choice. Their inability to do well in science is related to relatively low quantitative aptitudes. In secondary school they had had difficulties with mathematics, and only 28 per cent of them had more than 3 years of secondary school mathematics. Almost all these men also embarked on two courses in science in their first year in college, during a rather difficult transitional period for them, since in general they had poor preparation and came from backgrounds quite different from those of most Harvard students.

The great majority of these men would still like to go to medical school if they

felt it possible. They are willing to go to any American medical school. Their present plans are to go to law school or business school, or to secure a Ph.D. in the social sciences.

*Unfavorable image.*—There were two distinct subdivisions in this category of "unfavorable" image of the physician: (a) the "inferior scientist" and (b) the "non-humanitarian physician."

a) *The "inferior scientist":* Eight of the 44 students were classified as perceiving the physician as an "inferior scientist." To them the doctor was a "second-class scientist," a "pragmatist," applying the principles of the basic sciences much as an engineer applies the principles of physics and mathematics. A few further quotations will capture their attitudes: "it's nice in medical practice to help people, but you can help people much more by discoveries in science"; "medicine is too much application"; "it's not challenging enough, you can't use your full powers"; "a doctor just memorizes, he's not at all intellectual"; "you don't have to be a good scientist to be a good doctor"; "people are not predictable but chemical reactions are."

When asked if they had considered the basic medical science program at a medical school, they invariably replied, "I've investigated that; the teaching load is too great." These students have little knowledge of what clinical research entails, it being dismissed as "not challenging enough"; "not pure science"; "not really intellectual."

The remarks by this able group of chemists about the course in organic chemistry are of considerable interest. Their remarks can be summarized by the following typical quotations: "I was discouraged by organic chemistry—too much memorizing. I was afraid medical school would be the same way"; "Too much memorizing in organic chemistry; for-

tunately, I took physical chemistry at the same time which was quite exciting and led to my choosing to get my Ph.D. in that subject."

This group of students was extremely able, containing within its ranks several National Merit Scholarship winners. Coming to Harvard with the idea of becoming physicians, they have all been admitted to graduate schools where they will study for Ph.D.'s in the natural sciences. As a group they are warm, friendly, mature, and have participated widely in extracurricular activities.

Almost all members of this group have verbal and quantitative aptitudes above 700. All had 4 years of mathematics in secondary school.

They all mentioned, but in a peripheral way, that they had secured fellowships for graduate study which provide free tuition and in addition more than \$2000 per year. They did not think this a factor in their career decision. The great majority in this group came from families who were financially able to send their sons through medical school. They also mentioned that the prestige of the scientist in our society is increasing and certainly exceeds that of the physician.

Several members of the university administration thought that this group of students would have gone to medical school several years ago, but that active recruitment by scientists as well as the increasing prestige of the scientist in our society accounted for the change. These students confirmed this in attributing a great part of their change in attitude about medicine to active proselytizing for the natural sciences as opposed to medicine by their tutors in the sciences. Often their tutors talked to their families about the advantages of a career in science, thus aiding the young man to successfully resist family pressures to continue in medicine.

b) The "non-humanitarian" physician:

Sixteen of the 44 students were classified as perceiving the physician as a "non-humanitarian" person. A few quotations will explain their attitudes: "physicians are just scientists without broad interests, without real interest in people"; "the doctor is just a person who treats isolated parts, like the heart or the lungs"; "the doctor is ruled by the laboratory test and the patient is just another test"; "doctors are coldly scientific."

These students often worked in accident rooms or in the wards of local hospitals in the Harvard Volunteer Program. They were appalled at the interns and residents whom they described as "only interested in science"; "they're not very human"; "they are cold and cynical and make jokes about patients"; "they depersonalize patients"; "too much emphasis on research and too little on the doctor-patient relationship"; "medical school is 4 years divorced from the humanities"; "shining new hospitals, one intricate part is the modern doctor"; "when you enter a hospital as I did as a patient, it was a crashing of my ideals"; "in a medical school you don't live for 4 years, it's not an adventure."

Students with this type of image can be easily subdivided into two groups: One group, comprising eight students, entered college with considerable commitment to medicine, completed most of their premedical science requirements with high grades, but became disillusioned with the physician as a person who works with people. These students now plan careers in teaching, the law, and the social sciences. Undoubtedly this group would have made fine clinicians.

The other group, comprising eight students, not only saw the physician as a nonhumanitarian but also expressed the idea that the physician was only interested in monetary gain. These boys were never actively committed to medi-

TABLE 4

THE STUDENTS' PLACES OF RESIDENCE AND THEIR IMAGES OF THE PHYSICIAN

	PLACE OF RESIDENCE	
	City	Country
Unfavorable image	22	2
Favorable image	6	14

$$\chi^2 = 15.3615$$

$$P > .001$$

TABLE 5

THE TYPES OF SECONDARY SCHOOLS ATTENDED AND THE IMAGES OF THE PHYSICIAN

	SECONDARY SCHOOL	
	Public	Private
Unfavorable image	14	10
Favorable image	13	7

Not significant

TABLE 6

THE PROFESSIONS OF THE FATHERS AND THE IMAGES OF THE PHYSICIAN

	FATHER M.D.	
	Yes	No
Unfavorable image	6	18
Favorable image	3	17

Not significant

TABLE 7

UNDUE PARENTAL PRESSURE TO BECOME A PHYSICIAN AND THE IMAGES OF THE PHYSICIAN

	UNDUE PARENTAL PRESSURE	
	Yes	No
Unfavorable image	16	8
Favorable image	5	15

$$\chi^2 = 6.0132$$

$$.02 > P > .01$$

cine but were following premedical courses at the wishes of their families who exerted great pressure on them when they wished to abandon their plans for a medical career. These students usually took only one science course in which they did quite poorly.

#### THE RELATIONSHIP OF THE IMAGE OF THE PHYSICIAN TO THE OTHER DATA

It was of interest to relate the "favorable" and "unfavorable" images of the physician to some of the other data gathered on these students. We related their "images" of the physician to the following:

- Place of residence, i.e., whether in a large city and its suburbs or a small town or the country.
- The type of secondary school education of the student, i.e., public or private.
- Father's occupation, i.e., whether or not father was a physician.
- The presence or absence of undue pressure from the parent for pursuing a medical career.
- Science grades.

*Place of residence.*—The place of residence correlated significantly with differences in the image of the physician

(Table 4). The students from small towns significantly had a very positive image of the doctor as compared with those from large cities or the suburbs who most frequently had an unfavorable image of the physician.

*Type of secondary school.*—The image of the physician was not related to whether or not the student went to a public or private secondary school (Table 5).

*Father's occupation.*—There was no relationship between the father's being a physician and the image the student held of physicians (Table 6).

*Undue pressure by parent for student to pursue a medical career.*—The students who reported undue pressure from a parent for them to enter the medical profession reported unfavorable images of physicians (Table 7).

*The students' image of the Harvard premedical student.*—In most colleges the picture painted of the premedical student is often not a favorable one. They are seen as extremely competitive students who will resort to all kinds of devices to gain their ends. We therefore inquired of these students their ideas concerning

TABLE 8  
THE RELATIONSHIP OF THE IMAGE OF THE  
PHYSICIAN TO SCIENCE GRADES

Image of physician	High science grades	Low science grades
Favorable	2	18
Unfavorable	16	8

$$\chi^2 = 12.2418$$

$$P > .01$$

the premedical students at Harvard. Their image of these students directly paralleled their own image of physicians without exception. When there was a favorable image of the physician, there was a favorable image of the student aspiring to a medical career; when there was an unfavorable image of the physician, there was an unfavorable one of the premedical student.

*Science grades.*—The type of image of the physician held by the student was significantly related to his science grades. In general, students with an unfavorable image of the physician tended to make higher science grades than students with favorable images of the physician (Table 8).

#### DISCUSSION

It is not surprising that the two factors of major importance in students who abandoned their medical career plans during college were the inability to make high science grades and the development of an unfavorable image of the physician. In only eight of the 44 students did these factors occur together.

Inability to make high grades in the sciences was related to relatively low quantitative aptitudes by Harvard College standards which were, however, high by national standards—mean quantitative aptitude scores on College Boards MAT 549. A number of these men have very high verbal aptitudes. Low grades with such quantitative aptitudes attest to the rigor of the science courses at Harvard.

The relationship between high quanti-

tative aptitudes and the ability to do science well has been extensively documented. In this context we would raise an important question: Will the study of more mathematics by students with relatively low quantitative aptitudes facilitate their learning sciences? Unfortunately, our data cannot enable us to answer this question, because in our sample very few students with relatively low quantitative aptitudes had studied more than 3 years of mathematics in secondary school, and even fewer of those with high quantitative aptitudes had taken less than 4 years of secondary school mathematics (Table 9).

Students usually increase their hours of instruction in subjects in which they have great skill. We do not know whether it is the mathematical skill itself which enables students with high quantitative aptitudes to do well in the natural sciences, or whether it is a type of interest and kind of mind which does both mathematics and science well. Other data suggest that the study of mathematics by students with low quantitative aptitudes increases their ability to learn sciences.<sup>1</sup> Carefully controlled studies in this area need to be carried out.

Within this group who have difficulties with the sciences were a number of students with reading difficulties which contributed to their inability to perform well academically. The knowledge that many students with reading problems have underlying emotional problems is too often ignored. These men need careful interviewing and testing to accurately diagnose their problems so that remedial steps can be taken for their reading and their personal difficulties. Almost all these students' reading problems were found by the freshman testing program. Some did not take the suggested remedial reading. Many who

<sup>1</sup> D. H. Funkenstein, unpublished data.



took the course failed to show considerable improvement and did not seek further help. Hahn (1) highlighted this problem in medical students. At least two medical schools have programs in this area.

Too often these students with low quantitative aptitudes and only three years of secondary school mathematics embarked on their premedical education by taking two sciences during their freshman year. These students who came from high schools where education was poor and thus had inadequate preparation for their Harvard studies were the very ones who had to make the greatest personal and social adjustment to college because their experiences before coming to college had been so different from their new experiences at the university. Most students succeed in adjusting to this transition, but there is often a period of time before the student "takes hold" of his new environment, and it is during this period that two sciences make too heavy demands on the academically ill-prepared student.

Some students with high quantitative aptitudes and excellent preparation for college had difficulties meeting the demands of two science courses during their freshman year. Going to college represented their first experience away from home, and many were trying out their newly attained "autonomy" from their parents and at the same time seeking to "find themselves"—important developmental tasks for all young men. Becoming preoccupied with these problems, their studies were neglected. In such cases, heavy science demands would best be postponed until their sophomore year, when they had reached better solutions to these developmental tasks.

The other reason for students' abandoning their plans for medical careers was the acquiring of an unfavorable image of the physician so that he was

TABLE 9

THE RELATIONSHIP OF THE MAT (QUANTITATIVE APTITUDE) SCORES ON THE COLLEGE BOARDS TO THE NUMBER OF YEARS OF MATHEMATICS STUDIED IN SECONDARY SCHOOL

	SECONDARY SCHOOL	
	4 years Math	3 years Math
MAT < 600	6	17
MAT > 600	18	3

$$\chi^2 = 13.4285$$

$$P > .001$$

no longer an ideal to follow. Students from large cities and their suburbs, as contrasted with students from small towns, frequently developed unfavorable images of physicians, since their only contacts with the profession were a variety of specialists. This type of unfavorable image was reinforced during college by their contacts with interns and residents while working on volunteer programs in large hospitals.

The image held by the students was not related to whether or not their fathers were doctors. However, in all cases in which the father was a physician and the image of the physician held by the son was an unfavorable one, the father, although successful, felt that he had made a mistake in choosing medicine as a career. These fathers were themselves sons of physicians.

The small group of students who saw the physician as not humanitarian and as primarily a businessman reported undue pressure from their families to pursue a career to which they themselves had never had a commitment.

A variety of factors were operative in the group of students who held unfavorable images of physicians as scientists. This group saw their tutor in the sciences as the greatest influence in their changing their career plans. These tutors were reported as actively proselytizing them into a scientific career. The tutors suggested that they read clinical research reports which they felt were un-

sound from the experimental standpoint and not "real science." They rejected careers in the basic medical sciences because they felt the teaching load in a medical school was too great. These scientists reported too much memorizing in the organic chemistry course. They thought that medical school would be like that. Physical chemistry they found exciting. They also felt that the scientist had more prestige in our society than the doctor.

Although the acquiring of an unfavorable image of the physician was a major reason for abandoning medicine as a career, such an image did not result in students making poor grades in the sciences (Table 8). Students with unfavorable images actually made higher grades in the sciences than those with favorable images. This was related to two factors: The group with unfavorable images included the outstanding science students who will continue their careers in this field, and the overriding factor in this sample was that those with unfavorable images of physicians had much higher quantitative aptitudes and had studied more mathematics than those with favorable images. This suggests that quantitative aptitudes are more important in learning science than the student's image of the physician. This could be easily confirmed by examining the sizable group majoring in the humanities who made high grades in the sciences but no longer plan medical careers. These students have very high quantitative aptitudes.

It was rather surprising that neither the length of medical education nor its costs were mentioned as deterrents by this group of students. It would seem that these two matters merit further consideration here. Much of the information upon which the conclusion that the length and cost are important deterrents has been gathered from medical students. Other data of ours on medical students

show this to be true.<sup>1</sup> Perhaps it is only after the student is embarked on a medical career, when marriage and other obligations loom, that he realizes the handicaps such a lengthy education imposes on him. The other possible explanation is that the study reported here is of a specific group of students—namely, those who entered college planning medical careers but subsequently abandoned them. This report gives no information about students who may never have considered medicine for the above reasons, or who, having considered it before entering college or after entering college, abandoned these plans. In these three groups of students the reason for changing their career plans may be quite different.

In a subsequent paper we plan to give our ideas based on the findings reported in this paper of the procedures medicine could follow to increase the number of able applicants to medical school from this group.

#### SUMMARY

1. Forty-four Harvard College students who abandoned their plans for careers in medicine after entering college were interviewed during the spring of their senior year. Additional data obtained were their college board scores and their college records.

2. The two chief factors in their abandoning their medical career plans were the inability to make high grades in the sciences and the acquiring of an unfavorable image of the physician.

3. Inability to make high grades in the sciences was related to a relatively low quantitative aptitude in relation to verbal aptitude. The great majority of such students had not studied mathematics beyond 3 years in high school.

4. The unfavorable images of physicians were of two types: One group now planning careers in the natural sciences who saw the physician as an "inferior

scientist," and another group, now planning careers in teaching, the social sciences, or the law, who perceived the physician as a "non-humanitarian" person.

5. A favorable image of the physician was most frequently associated with being reared in a small town. The image that the student holds of the physician was not related to his father's occupation or the type of school from which he comes.

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# MEDICAL EDUCATION FORUM

## Editorials

### A REPORT ON N.I.H.

Although deficiencies exist in the administration of the research and training grant programs of the N.I.H., these should not detract from their immense value or from N.I.H.'s many outstanding accomplishments. This seems to summarize the findings of a recent report (the Fountain Report) from the Intergovernmental Relations Subcommittee of the House Committee on Government Operations.

The rapid expansion of the annual expenditures at N.I.H. from \$21,900,000.00 to \$447,500,000.00 since 1950 has made scrutiny of the distribution and use of funds difficult. Thus, it is only natural to expect instances in which tighter administrative controls and more detailed scrutiny of budgetary practices by grantees would have been desirable.

It is evident that the national attitude today is toward even greater investment of federal funds in medical research, especially through N.I.H. This will occur despite the fact that many thoughtful educators and scientists feel that N.I.H. is already large enough. There is good reason to question the ability of any organization to develop a system and a staff sufficient to assure that the criticisms in the Fountain Report are resolved. It is possible that a tightening of federal controls, as suggested in the report, would impede the progress of research. We doubt whether medical school faculty members can spend any more time on N.I.H. committees without jeopardizing education and research in their mother institution. There is another solution, however.

Some of the criticisms in the Fountain Report should be quelled by moving ahead promptly with the institutional research grant program to place a greater part of the administrative responsibility where it belongs—in our colleges and universities. Anyone who has worked in both federal and university posts knows that universities can be masters of inefficiency. But why not give them a try.

### WHAT IS BALANCE?

"Balance" is the stated problem of many medical educators today. What is it? How do we achieve it? How do we maintain it? We wish we knew!

From a metabolic viewpoint the anabolic state of research is said to have overpowered the catabolic state of education. The building blocks of research—investigators and laboratories—are in richer supply than the building blocks of education—students, teachers, and teaching facilities. All indications are that, unless the present Congress enacts legislation expanding federal aid for medical education, the imbalance will become even greater. How can we achieve a proper balance between teaching and research?

Yet the enactment of legislation expanding federal support for medical education would raise another problem of balance. In this year of grace (and recession), 1961, medical schools and their parent universities are feeling the pinch in contributions to endowment and in appropriations from state legislatures. Federal support of medical education should ideally be associated with expanding endowments and support from state appropriations. It would be tragic if federal funds were substituted for traditional support. How will we achieve balance between federal funds and funds from state appropriations and endowments?

All signs indicate that federal support for medical research will expand during the coming years. Funds may again be appropriated in excess of those requested by N.I.H. Thus, rapidly expanding federal support may overpower fund-raising by the voluntary health agencies, as the public loses interest in supporting organizations concerned with cancer, heart disease, and similar programs. The voluntary health agencies have pioneered developments which the flexible nature of their programs encourages. How shall we assure balance between federal support for medical research and support from the voluntary agencies?

It would be simple if we could apply some magic formula to assure balance in our medical schools. Clearly, the problem differs from school to school, and it is difficult to see golden opportunities pass by, whatever the source of funds or the dimensions of the program.

Continuing increases in endowment funds as well as state appropriations and the enactment of legislation for federal aid to medical education are decisive factors in maintaining balance. The fact that administrators and many faculty members are concerned about balance assures that we will make every effort to maintain it.

### THE AVALON FOUNDATION

The Avalon Foundation of New York has appropriated over one million dollars for scholarship grants of \$10,000.00 to \$16,000.00 for the medical schools of the United States. The grants have been based upon the size of the student body and other scholarship funds available to the school.

Beyond the monetary significance of the Avalon grants, there lies the reaffirmation of the important role of private philanthropy in medical education today. As the Congress continues its extensive deliberations on federal aid including scholarships and loans, a private foundation has moved with a vigor that will gladden the hearts of all medical educators. Let others follow suit!

JOHN Z. BOWERS, M.D.

## Datagrams\*

### AGE DISTRIBUTION OF MEDICAL FACULTIES AND SOME SELECTIVE SERVICE AND MOBILIZATION IMPLICATIONS

Information derived from the Faculty Registry provides data which could be of significance in the event of a national emergency.<sup>1</sup> A full recognition of the possible impact of such an eventuality on the medical faculties, coupled with appropriate pre-planning to meet the changing situation, might do much to minimize the disruption of medical education in a period of stress.

For this reason we present the following information summarized in two parts as follows:

1. Distribution by age of full-time and part-time faculty members.
2. Selective service and reserve status of full-time and part-time faculty members.

TABLE 1  
AGE DISTRIBUTION OF FULL-TIME AND PART-TIME FACULTY MEMBERS IN  
U. S. MEDICAL SCHOOLS DURING ACADEMIC YEAR 1959-60

FULL-TIME						
Age	M.D.	Percent	Ph.D. & Others	Percent	Total	Percent
81-90	2	<0.1%	....	....	2	<0.1%
71-80	18	0.3	21	0.6	39	0.4
61-70	364	5.1	181	4.9	545	5.0
51-60	880	12.4	519	14.0	1,399	12.9
41-50	2,074	29.2	1,014	27.3	3,088	28.6
31-40	3,540	49.9	1,714	46.1	5,254	48.6
21-30	172	2.4	241	6.5	413	3.8
NR	51	0.7	24	0.6	75	0.7
Total	7,101	100.0%	3,714	100.0%	10,815	100.0%
PART-TIME						
81-90	20	0.1%	1	0.1%	21	0.1%
71-80	212	0.9	29	1.9	241	1.0
61-70	1,956	8.3	112	7.5	2,068	8.3
51-60	5,391	23.0	292	19.5	5,683	22.7
41-50	8,454	36.0	479	32.0	8,933	35.8
31-40	7,262	30.9	519	34.6	7,781	31.1
21-30	72	0.3	52	3.5	124	0.5
NR	121	0.5	14	0.9	135	0.5
Total	23,488	100.0%	1,498	100.0%	24,986	100.0%

From Table 1 it can be seen that somewhat more than half the full-time faculty members were 40 years of age or younger. The distribution for both M.D.'s and non-M.D.'s was similar. The mean age for all full-time faculty members was 42 years; the median was 40 years.

Among part-time teachers in medical schools only about a third were 40 years of age or younger. The mean age for this group as a whole was 47 years; the median was 46 years.

A similar age distribution among full-time and part-time faculty members was reported by Diehl, et al. in the article entitled, "Medical School Faculties in the National Emergency," published in the Journal of Medical Education, Vol. 27, Part I in July of 1952.

Current provision of the Universal Military Training and Service Act, passed by the 86th Congress to expire July 1, 1963, limits the liability of doctors, dentists and allied specialists to those who have not yet reached their 35th birthday. Only

<sup>1</sup>See the last paragraph of Datagrams, Vol. 2 No. 6, December, 1960 for a discussion of the limitations of the data.

\*Submitted by the Division of Operational Studies of the AAMC.



those specialists who are otherwise liable as regular registrants are subject to induction under the present Selective Service Law.

Information from the Faculty Registry indicates that in the academic year 1959-60 approximately 2,855 full-time and 2,681 part-time faculty members were in the eligible-for-service group on the basis of age. About 26% of the full-time faculty were under 35 years of age. The proportion of part-time under 35 was almost 11%. Information concerning Selective Service classification was not entirely complete for either group. However, based on this tabulation, the proportional distribution of the eligible group according to the five major classifications was as shown in Table 2.

TABLE 2  
SELECTIVE SERVICE CLASSIFICATION OF MEDICAL SCHOOL FACULTY MEMBERS  
UNDER 35 YEARS OF AGE DURING ACADEMIC YEAR 1959-60

Selective Service Classification	FULL-TIME		PART-TIME	
	Number	Percent	Number	Percent
I	196	6.9%	161	6.0%
II	114	4.0	58	2.1
III	84	2.9	30	1.1
IV	547	19.1	511	19.1
V	750	26.3	696	26.0
NR	1,164	40.8	1,225	45.7
Total Faculty Under 35 Yrs. of Age	2,855	100.0%	2,681	100.0%

NOTE: Selective Service Classifications are broken into numerous sub-categories. Those most applicable to the present text are briefly summarized as follows:

- |  |   |
|--|---|
| Ia. Available for processing and induction   | IIIa. Hardship or dependency classification     |
| Id. Reserve classification   | IVa. Having a year or more of honorable service |
| IIa. Occupational deferment  | IVd. Divinity status                            |
| IIb. Student deferment   | IVf. Physically unfit                           |
| Va. Mainly those who have been deferred for some reason such as employment or education and are over 26 but under 35 years of age. |   |

It is interesting to note that among those under 35 years of age only about 7% of full-time and 6% of part-time faculty members designated category I as their Selective Service classification.

Data pertaining to reserve officer status are shown in Table 3.

TABLE 3  
NUMBER AND DISTRIBUTION OF FACULTY MEMBERS REPORTING RESERVE STATUS  
BY FULL-TIME AND PART-TIME APPOINTMENTS

Status	FULL-TIME		PART-TIME	
	Number	Percent	Number	Percent
Ready	369	23.4%	742	15.8%
Standby	591	37.5	1,211	25.8
Retired	616	39.1	2,735	58.3
Total Faculty Reporting	1,576	100.0%	4,688	100.0%

Six thousand two hundred and sixty-four full-time and part-time faculty members, or 17% of the total faculty included in the Registry, reported holding commissions in the Reserve Officer Corps. Of these, 1,576 had full-time teaching appointments; 4,688 held part-time teaching positions. About 61% of the reserves holding full-time teaching positions and 42% holding part-time positions were assigned to the "Ready" or "Standby" mobilization categories. Among the reserve officers, 219 full-time and 757 part-time faculty members had mobilization assignments.

These data are submitted as being suggestive of some of the adjustments which medical schools collectively would have to make in case of a national emergency.

## Communications

### FOUR SEMINARS ON MEDICAL EDUCATION IN THE UNITED STATES, FOR GRADUATES OF FOREIGN MEDICAL SCHOOLS

PALMER H. FUTCHER\*

Many graduates of foreign medical schools who are studying in this country will find that a knowledge of medical education in the United States will be of benefit to them. Upon return to their homes, they may use information of this type in shaping the curricula of schools in their country. They may be called upon to advise other physicians who are considering going to the United States for further training in a medical field.

At the annual meeting of the Association of American Medical Colleges in the fall of 1960, the chairman of the Association's Committee on International Relations in Medical Education, Dr. Robert A. Moore, suggested that instruction in the organization of medical education in the United States be offered to foreign graduates attending our schools. Subsequently, four seminars on "Medical Education in the U.S.A." were offered in February, 1961, to foreign medical graduates at the Johns Hopkins Medical Institutions on an elective basis. While sponsored by the School of Medicine, the instruction also received the strong support of the administration of the School of Hygiene and Public Health.

About one-half of the approximately 25 student participants were candidates for the degree of Master of Public Health offered by the latter school. The other half were clinical and research Fellows in the School of Medicine. Attendance by the many foreign Fellows in the School of Medicine proved to be limited; in particular, very few of the foreign house officers from the Hospital attended, in part owing to conflict with other afternoon responsibilities.

Those electing the course attended consistently. Discussion by the student participants was active. The series was extended for an extra, fifth session at the request of the students; they desired to participate in a discussion of medical education in two other areas of the world, including Latin America, led by appropriate members of the class.

Each seminar lasted 90 minutes. Introductory comments by the leader for the afternoon occupied 20 to 30 minutes; questions and discussion followed. The leaders and their general subjects were as follows:

1. W. Barry Wood (Professor of Microbiology; chairman of Medical School's Committee on Educational Policy and Curriculum). "Medical Education in the U.S.A." Goals, Education of Medical Students (predoctoral), Selection of Medical Students, and The Financing of Medical Education (General).

2. John C. Whitehorn (Professor Emeritus of Psychiatry; Former Chairman of School's Committee on Residency Training). "Postdoctoral Medical Education." Internship and Residency, and Fellowships.

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3. Russell A. Nelson (Director, Johns Hopkins Hospital; Chairman of Medical Institutions' Medical Planning and Development Committee). "The Hospital and Medical Education." The Hospital with Medical School Affiliation Organization, and The Hospital without Medical School Affiliation.

4. Timothy D. Baker (Assistant Dean, School of Hygiene), Palmer H. Fitcher (Assistant Dean, School of Medicine). "The Contribution of the U.S.A. to the Training of Foreign Physicians." (Brief recapitulation of preceding discussions as they relate to citizens of other countries. The special educational needs of foreign physicians Educational Council for Foreign Medical Graduates).

The students were supplied a brief bibliography, which is presented below:

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## PLACE OF ANTHROPOLOGY IN MEDICAL EDUCATION

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### INTRODUCTION

Medical education, it is true, is intensive, exacting, and utterly engrossing. The young practitioner of today is better equipped in technical abilities than were many of his predecessors. However, in many countries it is assumed that a medical student has enough cultural background. He is rapidly engrossed in medical learning and proceeds toward the goal of medical practice. However, hardly any opportunity is given to him to acquire the social and cultural knowledge that may help him to understand that "public" upon which he has to bestow his skills and from which he has to derive his livelihood.

The medical students in India are usually from the cities; they are educated in cities, and, therefore, it is natural that they would be attracted to practice in the more lucrative and socially desirable urban setting; but 82.7 per cent of the population in India lives in villages. The difficulties of communication, lack of recreational activities and other amenities of city life, and barriers of dialect, etc., are some of the reasons due to which young medical graduates do not like to settle in rural areas and fail to adjust in the rural setting. Consequently, it is important that the medical students are given opportunities for close association with the village people to develop an understanding of rural life and culture, assessing the needs of the villagers and how they can best be helped in their fight against disease and disability. They can thereby be inspired to serve in places where their services are most urgently required.

The process of planning, organizing, and operating a medical or public health program that attempts to bring the knowledge and skills of scientific medicine to the service of the rural areas, where the background of science on which it rests is lacking or sometimes even rejected, calls for considerable knowledge of the general concepts of culture and social organization and an advanced knowledge of the rural cultural level for which the program is designed. It is proposed to consider here which of the three social sciences—i.e., anthropology, sociology, and social psychology—may help the medical men most to acquire such a knowledge.

### ANTHROPOLOGY AND SOCIAL MEDICINE

There are two peculiarities of anthropological discipline which provide greater opportunities for the anthropologists and the health workers to establish good relationships and be of greater help to one another. These are the interest of both public health workers and anthropologists in human biology (physical

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anthropology) and a sharing of interest in human ecology. Whereas other social scientists are interested in the study of social environment only, anthropologists are interested in the natural environment as well (3).

Medical colleges in India have recently begun to re-examine their entrance requirements and to pay attention to the point of view that students should study social sciences and humanities. The establishment of departments of social and preventive medicine in medical colleges and the growing literature in the field of "social medicine" and "medical anthropology" give indication of the vigor of the current trend and the direction in which trends are developing.

If medicine is to function for the advancement of human welfare, the medical man needs to know something of social sciences, their historical developments, concepts, contents, procedures, tools and techniques, limitations, and technical language. On the other hand, the social scientist, working with specialists in the field of medicine, should have a comparable knowledge of medicine, public health, and of the underlying biological and physical sciences. For example, a medical student cannot appreciate the importance of family planning for better health unless he understands the problem of population. A social scientist cannot effectively speak on population problem unless he understands the methods of family planning and their limitations. The habit of walking barefooted by village folk in India has been found to be responsible for hookworm infestation and anemia. Similarly, the relationship of polyandry with venereal diseases among the *Khasas* of Jaunsar Bawar area in the State of Uttar Pradesh in India has been pointed out recently (2). These and many other social and cultural factors in health and disease and social and cultural implications of modern medicine and public health programs can be understood only when both medical men and social scientists are equipped with some of the understanding of the other's area of professional competence (4). As already pointed out above, anthropologists are in a more advantageous position than other social scientists in this respect. Since anthropology is an overlapping study with bridges into the physical, biological, and social sciences and into the humanities, the workers in this field are in a better position to have a comparable knowledge of medicine and public health and in turn can communicate their knowledge and experiences of socio-cultural and physiographic environments. Thus, anthropology and medicine have much to give to each other (1).

#### SOLUTION OF THE PROBLEM

Although there is beginning to be considerable agreement that students of medicine and related fields should know something of the social sciences in general and anthropology in particular, there is less clarity about where, when, and in what circumstances such knowledge should be communicated. One way would be that students planning to go into medicine should be given a background in social biology (physical anthropology). In premedical education in India students planning to go into medicine have to offer biology as a main subject in the scientific group, with one paper each on zoology and botany. If a third paper on social biology is introduced in the same subject, then a broad-based background in bio-social science along with physics and chemistry would be made possible.

A second way of teaching social science to students of medicine and related

fields would be to include anthropological materials in the undergraduate medical curricula. The inclusion of anthropology in medical education is becoming increasingly important. This may be of assistance in making medical education broad-based and equipping physicians better for the advancement of human welfare.

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## Report

### THE HARVARD PROGRAM FOR TEACHERS OF PREVENTIVE MEDICINE AND PUBLIC HEALTH

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#### ORIGIN AND DEVELOPMENT OF PROGRAM

##### Modern Trends in Teaching Preventive Medicine

A particularly significant change in medical education in the last 2 decades has been the re-orientation and growth of departments of preventive medicine. Traditional approaches to teaching public health have been sharply curtailed because the largely didactic and superficial coverage did little more than alienate student interest. Instead, two major emphases have been introduced in experimental programs in various parts of the world.

*Clinical preventive medicine as part of comprehensive medicine.*—Major changes in disease patterns and lay sophistication in health matters require practicing physicians to devote more attention to disease prevention and health preservation than has been traditional. This change is reflected in medical schools by the recognition that all clinical and preclinical departments should share responsibility for teaching about prevention. Particularly in out-patient teaching it has been possible to develop comprehensive medical services in which the skills of diverse specialists are brought to bear on the needs of patients. An immediate post-war phenomenon was the trend to appoint clinicians as heads of departments so that the preventive emphasis in comprehensive medicine could be adequately stressed. It is to be anticipated that, as other clinical departments assume increasing responsibility for this type of comprehensive medicine, the role of departments of preventive medicine will be increasingly one of coordination and stimulation.

*Community and social medicine with the primary research discipline being epidemiology.*—A community or group orientation represents a unique contribution of departments of preventive medicine within the academic framework of medical schools. As responsibility for teaching clinical preventive medicine and comprehensive medicine is increasingly assumed by the clinical departments, it will be possible for departments of preventive medicine to concentrate more on the community and social emphasis which no one else can or should take primary responsibility for in a medical school. With increasing general acceptance of Virchow's dictum that "medicine is a social science," doctors are expected to be more active in evaluating and modifying the ecological factors that influence health. With growing demand for and application of epidemiological skills in modern research, departments of preventive medicine can contribute methods and facilities for community and population investigation to team efforts within medical schools.

The present shift in teaching preventive medicine occurred first in western countries because of changing social conditions and the demands of new disease patterns; chronic, noncommunicable conditions required greater attention to social factors of causation. In newly developing countries the relevance of modern teaching in preventive medicine has led to wide theoretical acceptance but inadequate implementation. A primary need in improving health conditions in developing countries is preparation of a new generation of doctors among whom the integration of preventive with curative practice is reflexive. The basic pattern of medical and health care which is developing for the majority of the world's population who live in the rural areas of developing countries is based on a system of rural health centers integrated into regionalized health services. The large numbers of doctors required for these centers need to have a whole new orientation introduced into their education, with the most logical feature being the use of teaching health centers for a major part of their practical work in both preclinical and clinical years.

In most regions of the world series of conferences have been held in the last 5 years to discuss the teaching of preventive and social medicine under the auspices of regional offices of W.H.O., I.C.A., Rockefeller Foundation and the national governments. A large degree of unanimity has developed about objectives and the general pattern of education desired. It is, of course, clear that local variations and appropriate innovations will be necessary to meet specific needs in particular countries and individual medical schools.

#### Need for Program for Teachers of Preventive Medicine and Public Health

As a result of the widespread acceptance of modern preventive and social medicine teaching, many countries have set up official requirements for new departments. These ambitious regulations have, in general, been difficult to implement because of lack of teachers. Finances and facilities can be readily provided for new departments, but the only teachers available are often retired public health officials. The growing need for a program specifically designed to prepare teachers to organize new departments caused W.H.O. in 1955 to request Harvard School of Public Health to organize such an activity. Nine medical school departments of preventive medicine in the Eastern United States<sup>1</sup> have cooperated by taking our students for teaching residencies.

#### Objectives

The general objective is to provide postgraduate education for teachers of public health and preventive medicine. More specific objectives are:

1. To clarify understanding to what preventive medicine is and how it can be applied at the three levels of individual, family and community.
2. To arrange individualized programs building on the academic background and experience of each candidate so as to ensure that they have sound preparation in both clinical preventive medicine and public health.
3. To provide theoretical and practical work in educational methods.
4. To provide experience in research methods.

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### Program Activities

The original plan for this experimental program included an attempt to provide preparation in each of the above areas considered useful for teachers of preventive medicine. Modifications have been necessary as we learned about the feasibility of specific activities, and a major re-evaluation was carried out in 1959. It was agreed that the program had demonstrated its value and should be incorporated into the regular academic structure of the School of Public Health rather than being continued as an experimental, interdepartmental unit. The following activities are provided:

*Public health and community medicine.*—This type of preparation has fitted in readily with the normal activities of the School of Public Health. Students are expected to acquire a Master's degree in Public Health if they do not have equivalent preparation. They can pursue specialized studies in areas of public health related to their particular interests. Basic public health training is recognized to be even more important for students coming from other countries than for teachers preparing for work in the United States. Where doctors are being prepared for rural health center service, the general physicians should be adequately prepared to assume responsibility for implementing community health measures. One recent change in our program at Harvard is that, instead of being limited in their academic affiliation to being members of the program for teachers, students now can also major in one of the departments of the School such as Epidemiology, Maternal and Child Health, or Microbiology. We are trying to encourage those who show particular competence to stay on in a department and work for a doctorate in Public Health.

*Clinical preventive medicine.*—It is felt that a sound background in clinical medicine is extremely important for a good teacher of preventive medicine. Without understanding disease it is difficult to contribute much to its prevention. The prestige of teachers of preventive medicine with both faculty colleagues and students is enhanced if they are recognized to have basic competence in clinical medicine. Modern teaching in departments of preventive medicine often includes the use of integrated curative and preventive facilities either in comprehensive care clinics in out-patient departments or health centers with basic clinical services. During the course opportunities are provided for observation in clinical preventive medicine facilities of cooperating departments of preventive medicine such as home care programs and comprehensive and family clinics and in infectious diseases.

*The Seminar in Preventive Medicine and Public Health.*—This seminar which meets once a week throughout the year has been the core of the program. With increasing experience in this type of seminar teaching, it has been possible to develop with each group an intensive analysis of the whole academic area of preventive medicine. Detailed study is undertaken of various experiences in teaching preventive and social medicine and their applicability under different situations. Two to 3 weeks of peripatetic seminars have been the field part of this teaching, and, through visits to selected medical schools in the Eastern United States and Puerto Rico, it has been possible to observe in detail many of the activities discussed in our seminars.

*Theoretical study and practical experience in educational methods.*—The fact

that we had groups of teachers coming to us for 1-2 years of intensive study provided a unique opportunity to experiment with introducing pedagogical knowledge and experience into their preparation. As far as we know, this is the first time that a group of medical school teachers have been taught how to teach, other than through summer institutes such as those held at Buffalo and Chicago. The basic seminar in educational methods has been conducted by specialists from the Harvard Graduate School of Education and has covered subjects such as psychology of learning, teaching for attitude change, case method of teaching, communication, methods of examination and evaluation, and practical discussions on what can be done with a lecture or seminar and how to achieve the desired results. As part of the regular seminars in preventive medicine each of the members of the group presents a series of 10-minute teaching sessions which are discussed by the whole group. The presentations are tape-recorded, and in tutorial sessions more specific attention is paid to improving the individual's teaching skills. For the past 5 years our men have been assigned to teaching residencies in the cooperating medical school departments. During their second year in the program they were rotated through the various types of teaching conducted by the department, with responsibility according to their proficiency. With the projected development of residency programs approved by the American Board of Preventive Medicine, a cooperative relationship is anticipated which will permit us to work any department with an approved residency program.

*Research.*—The prestige of departments of preventive medicine will depend largely on their research. Especially important is the provision of epidemiological skills for cooperative research with other medical school departments. Members of our group have opportunity to develop projects which should give them some competence in a particular research area. The field research has included such exotic studies as dysentery in Arctic Greenland, acceptance of contraceptives in Puerto Rico, accidents on Vermont farms, and two studies among Navajo Indians on nutritional anemia and deafness due to otitis media. Many more of the studies have been conducted closer to Boston. One of the members of this year's group has developed a test which shows some promise of aiding in the discovery of pre-diabetes, while another has been learning radio-biological methods in order to undertake a long-term field investigation of fishermen in South India who live on radioactive beaches. According to present plans, during the second year of the program students will have increasing opportunities to do research. Although these projects will be less advanced than doctorate programs, they will be directly related to long-range studies which candidates can undertake in their own medical schools.

*International health.*—Increasingly, the seminar and other activities are probing the general problems of international health. Discussions center around topics such as regionalization of health services, the organization and operation of rural health centers, preparation of health personnel for rural service, and relationships to indigenous practitioners.

#### Students

Thirty-eight students have been assigned specifically to the program, and an additional 23 students have participated in seminars and other activities. These

61 teachers have come from 21 countries with the following regional distribution: India, Pakistan, Ceylon—20; U.S.A., Canada—16; Far East, Australia—12; Middle East—6; Latin American—5; Europe—2.

#### FUTURE OUTLOOK

##### Students

The admission standards of the School of Public Health have been rising rapidly during the past several years. The larger number of applicants has increased the competition for the 80 openings each year at the master's level. A decrease in the proportion of foreign students in the teachers' program has been compensated for by admission of American students interested in international health. To partially provide for the preparation of applicants who cannot be admitted to our course, regional programs for teachers are being developed which are more or less patterned on the one here at Harvard. Two years ago Calcutta School of Hygiene started such a program, and we have participated in the planning for other centers in Latin America and the Middle East.

##### Evaluation of Activities

In 1959 a general evaluation of the program led to appropriate administrative adjustments. Continuing evaluation is also provided by contacts with members of the group who are now back in their own medical schools. During the summer of 1959, eleven graduates in India, three in Thailand, and two in Japan were visited. These visits not only helped evaluate the Harvard program but also assisted our graduates in developing their departments. In the summer of 1960 visits were made to departments of preventive medicine and public health in all the medical schools in Turkey, Iran, and Pakistan to prepare for a conference on the teaching of preventive medicine in the Middle East which is to be held in the spring of 1961.

##### Eventual Prospects

Harvard School of Public Health is strongly oriented toward the preparation of teachers and research workers, and this program fits logically into the school's activities. As the program for teachers has stabilized, it has been incorporated into the regular academic program. In addition to the continuing need for staffing the many rapidly developing medical schools, we are beginning to receive requests from our own graduates for the admission of junior members of their departments. With our increasing orientation toward general international health work, this effort may also form the nucleus for an even broader emphasis in preparing specialists in international health.

## Letter to the Editor

I have read with interest a recent "Letter to the Editor" in *The Journal of Medical Education* from Dr. S. M. Tenney (35:553-57, 1960). Since my sympathies are similar to his, I am prompted to write down some points favoring an increase in numbers of the schools of basic medical science. It seems safe to assume that the need for more medical school graduates, new sources of medical educational funds, and the decreasing size of the third- and fourth-year classes in the present schools are so well known as to be truisms. Several major advantages in coping with these problems are available to the basic science medical schools.

The basic science medical school offers new possibilities for recruiting medical students. For the past 3 years the number of applicants to the present medical schools has diminished annually. With these basic science schools on university campuses the student advisors would have constantly before them the possibility of premedical planning for many able future physicians who are currently being directed into other areas because of the remoteness of a distant medical school while the engineering and science schools are very close.

The participation of the basic science medical school staff in the university functions would ever keep alive the dream of being a doctor in the minds of students who might otherwise lose it. Perhaps even more pertinent to the recruiting position of these schools is the role of speakers from the medical faculty to county medical societies, hospital groups, service clubs, high school science clubs, and high school graduations. There, not only the possibilities of a life in medicine can be stressed, but also the speaker's authoritative position and physical presence may awaken or reawaken dreams in the minds of students of emulating him. Personal contacts have always been the best source leading students to ultimately becoming a physician or surgeon.

Most of the basic science medical schools would have annual classes of 25-50 at the maximum. Since contacts between faculty and students can have started during the university premedical careers of the students, extremely fruitful personal counseling and individual assistance will exist in the small classes of these 2-year schools. As part of these contacts, it is inevitable that the medical school faculty will be included in the related staff meetings of the total university to evolve departmental plans and to develop teaching programs. In fact, the basic science school faculty can participate at all teaching levels and, in exchange, call on their related premedical professors for appropriate teaching assistance.

Relationships such as the above offer two other advantages. The first, that of finding the candidate with research and/or teaching potential to be steered toward this end rather than to continue to a possibly unhappy role in clinical medicine; the second, that of steering the frank misfit out of medicine before too much of his time and financial resources have been squandered. Close personal contacts and deep sympathetic understanding continue to be better bases for student selection than any battery of psychological and aptitude tests yet developed.



The faculty of the basic science medical school has another unique opportunity—i.e., to relate closely physicians in general practice, specialists, and personnel in ancillary medical specialties to the various teaching departments of their school so that the student can ever be aware of the relationships existing between his current studies and his proposed future life.

The passing of the family physician and the generalist are constantly bemoaned; yet, in the present 4-year medical college, the student is presented only the advanced scientist in his basic science courses and the super-specialist during his clinical years. The opportunity for daily classroom contacts between student and generalist will do much to balance our present trend to specialization and can be best offered in the basic science schools.

As more and more clinical material is being taught during the first 2 years of medical school, the basic science schools can also accomplish such teaching by relating community hospitals and clinics to their program just as the local physicians would be incorporated into school activities. These relationships would inevitably improve the level of practice both by making the physicians alert to the questions asked by students and by forcing the hospital administrators to elevate their hospitals to full accreditation to maintain these associations. Those with nursing schools barely able to stay approved would be stimulated to have top-rated nursing schools, not only because of the ward contacts of staff with student nurse and student doctor but more especially because of the inter-related teaching roles assumed by the faculty of the medical school with that of the school of nursing.

The presence of a basic science school in a university community brings added research monies, visits from touring outstanding medical and scientific personnel, and obtains roles for the faculty on federal research advisory groups, study sections, and councils, all of which stepwise raise the community level of medical service in all its possible spheres.

There is no doubt that many states cannot yet afford a full medical school or indeed provide the facilities for the clinical teaching years. Similarly, there are colleges and universities which should not undertake the sponsorship of full 4-year medical schools with the necessary related internships and residencies. Nevertheless, many of these states and many of these colleges and universities already have or could readily accumulate the necessary resources to undertake the sponsorship of a basic science 2-year medical school. Encouragement and guidance, plus an understanding that their "graduates" could finish medicine elsewhere, would lead to the development of more such schools than now exist or are even suspected of being possible.

The march of the basic science schools into the folds of the full 4-year medical schools has been constant since World War II. This in itself is good, but it has tended to frighten other states, other colleges, and other universities from any thought of organizing new basic science medical schools, since it seemed that their death knell had been sounded. Now only three approved 2-year basic science medical schools remain in the United States, in spite of the fact that there are many sites where others could appropriately be in existence.

If we are to meet the need for physicians every resource must be utilized. As stated above, many states, universities, and colleges have untapped resources which could be developed by the encouragement of the formation of new 2-year

basic science medical schools. It has been said that major league baseball could not exist at the level of excellence it has achieved without the minor league farm clubs, many of whom, incidentally, also play superb baseball. Could we not take a lesson from this sport and develop the possibilities of several basic science medical schools, feeding students into the last 2 years of the big 4-year medical schools and even, incidentally, from time to time moving outstanding teachers and scientists up to the "major leagues" of medical education?

Do not misunderstand the simile of the major and minor league ball clubs. This should in no way reflect on the teaching or research level of either the basic science or the 4-year medical institution. Both types of schools must always measure up to the requirements for approved medical schools as laid down by the Association of American Medical Colleges, the Educational Committee of the A.M.A., and similar groups. There should be no diminishing of sound requirements for medical education, only constant improvement based upon periodic re-evaluations of the standards by the appropriate approving agencies.

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## Communication from N.I.H.

### CAREER RESEARCH PROFESSOR PROGRAM

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As indicated in the June issue of the *Journal*, the National Institutes of Health has decided not to make awards under the Career Research Professorship Program announced in October, 1960. The decision not to make awards under an announced program after applications have been received is a step of such consequence that the institutions and individuals concerned are entitled to know the full background.

*Origin of the program.*—The Committee of Consultants of Medical Research to the Committee on Appropriations of the United States Senate issued in May 1960 a report, "Federal Support of Medical Research," which recommended that:

Funds should be provided through the National Institutes of Health in fiscal year 1961 to support the establishment of 200 research professorships in medical and dental schools and the basic science departments of colleges and universities at a salary level of \$20,000 a year, the funds to be made available to, and administered by, the respective institutions.

Subsequently, funds were appropriated for this purpose, and the guides for administration of the program were prepared. These were discussed with a large number of individuals from universities and with representatives of professional organizations. At that time, questions raised by these individuals related chiefly to such matters as the eligibility of faculty members with administrative duties, the firmness of the Federal Commitment to provide stable support, the fate of the award if the awardee changed schools, and other matters largely of an administrative nature.

However, over the ensuing months as institutions selected candidates, some more fundamental questions arose in the minds of the institutions and of the Federal administrators. These were as follows:

a) Some institutions had begun to have misgivings over the terms of a program which involved the Federal Government, even indirectly, in the selection of professors.

b) Some institutions were reluctant to make nominations because they did not wish to place full professors in national competition with each other or with professors from other institutions.

c) Other institutions were reluctant to make nominations because they felt that the award would not be stable, basing this view upon the words of the guide indicating that the awards would be initially for five years with a promise of support for the additional years, contingent upon annual appropriations.

d) On the part of the Federal Government, it was realized as applications were received that there had not been an adequate understanding with the universities as to the nature of the commitments that both they and the Federal Government should assume if a program for career support were to be fully acceptable and productive, and of the qualifications of candidates.

e) The guides stated that "Career Research Professors will be selected for support on the basis of demonstrated capacity to pursue with distinction a professorial career

\*Director, National Institutes of Health.

in independent research and teaching. The awards will, in general, be for full professors but may, in exceptional circumstances, be extended to associate professors." When the applications were reviewed *as a group*, it was found that a high proportion of the applicants were full professors of high distinction who were approaching, or who had entered, the final stages of their careers. Each institution acted in good faith within the terms of the guides, but the whole group did not possess characteristics in accord with the intent of Congress.

f) The guides further stated that, in the event a candidate is selected from staff currently paid by regular institutional funds, the institution must give assurance that the funds released will be applied toward the employment of additional professorial staff. This clause was intended to permit the occasional nomination under special circumstances of a candidate who might already have a stable position and income. Again, however, when the applications were reviewed, it was found that a high proportion of the nominees were full professors with tenure. The effect of the program would have been largely to release the university funds formerly used for the payment of the salaries of full professors for the appointment of junior faculty. This was not the intended major effect of the program as described to and accepted by the Congress.

No one of these reservations was conclusive, some of these were mutually exclusive, and they were given various weights by those concerned with the program. But in total, they constituted substantial reason to review with care both the fundamentals and the operating guides for the program. Such considerations led the National Advisory Health Council to pass the following resolution on March 15, 1961.

The National Advisory Health Council wishes to record its firm belief that there exists a serious need for provision of continuing salary and position support for a substantial number of investigators of demonstrated competence in the biomedical sciences. Many such individuals are presently supported from research grants to themselves as Principle Investigators or from the research grants of other investigators. Other investigators are supported by various Fellowship programs, and can look only to research grants for their future salaries since the financial resources of our universities, teaching hospitals and research institutes are already overstrained.

The program now entitled "Cancer Research Professorship" which was designed, at least in part, to meet this serious need, might have done so had it not been confused with yet a second aim, namely the identification, recognition and support of Career Research *Professors* who would be selected for support on the basis of demonstrated capacity to pursue with *distinction* a *professorial* career in independent research and teaching.

The National Advisory Health Council recognizes, indeed, that both aims are worthy, but asserts that it is administratively impossible to serve both ends within a single program. Accordingly, it is recommended:

- 1) That the Career Research Professorship Program, in its present form, be abandoned before implementation in the form of specific awards.

- 2) That the Senior Research Fellowship Program be expanded and appropriately modified to meet the need for stable and continuing support of investigators of demonstrated competence in the biomedical sciences.

- 3) In order to fulfill the Congressional intent in providing funds for the Career Research Professorship Program, it is recommended: That the funds originally intended for implementation of the Career Research Professorship Program in fiscal year 1961 be merged with the funds available in this year for the Senior Research Fellowship Program.

- 4) That serious consideration be given to the development of means to provide for a limited number of Distinguished Professorships in the Biomedical Sciences.

In the light of this resolution of further consideration of the applications and guides, the Inter-Council Committee on Career Research Professorships, which has been convened to make recommendations on applications was asked to consider the basic elements of the program and to advise on its future.

On the basis of the considerations brought forward by this group and further deliberation, it was decided (1) not to make awards under the October, 1960, guides, (2) to revise and issue new guides as quickly as possible, (3) to return all applications with a request that institutions review them in the light of the new guides and make new nominations, (4) to return the No. 2 appropriation for Career Research Professorships in fiscal year 1961 to the Treasury, and (4) to make awards in the second half of calendar year 1961.

A list of members of the Inter-Council Committee on Career Research Professorships follows:

INTER-COUNCIL COMMITTEE FOR RESEARCH PROFESSORSHIPS GRANT PROGRAM

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# ABSTRACTS FROM THE WORLD OF MEDICAL EDUCATION

ANGELA SANCHEZ-BARBUDO, PH.D.

Abstract Editor

**Centri Consultori per i Fumatori in Cecoslovacchia** (Consultation Centers for Smokers in Czechoslovakia). ANTONIN FINGERLAND. *Minerva Medica*, Vol. 52, No. 10, pp. 213-214 (Feb. 3), 1961.

The Director of the Institute of Pathological Anatomy, University of Hradec Králové (Czechoslovakia) discusses here the evidence pointing to a relation between habitual smoking and lung cancer, as well as certain heart and stomach disorders. In support of his conviction that such a relationship does definitely exist, the conclusions reached by the most competent medical authorities are adduced, such as the British Medical Research Council, the U. S. Public Health Service, the American Heart Society, and the Mayo Clinic. Heavy smoking, he points out, in view of the latest findings in medical research, must be considered as a threat to public health. Therefore, government Public Health Agencies of several countries have already established special committees to study the question and to find adequate methods of fighting and preventing the damage caused by smoking. Such a committee, composed of seven scientists (several smokers among them!), has been set up recently in Czechoslovakia. In the opinion of the author, the question is serious enough to be a matter of concern to the World Health Organization, which, in view of the splendid results it has obtained combatting malaria and tuberculosis, would be the most competent body to fight also this threat to public health. Meanwhile,

on the basis of our actual knowledge of the damage caused by smoking, the Regional Center of Health Education of the Hradec Králové District decided that a group of doctors study the question further in order to find ways in which to alert the people to the risks involved in smoking, and to help them get rid of the habit. For these purposes, a consultory center for smokers, run by several physicians, was established a year ago in Hradec Králové. During its first year of functioning, over 1,000 persons have come to the center for consultation, mostly men in the 30-50 age groups. Ninety per cent of these, after having been advised of the actual threat to their health, have subsequently reduced their tobacco intake considerably or have stopped smoking altogether (33 per cent). The good results obtained in this center led to the creation of similar ones in other Czechoslovakian cities as, for instance, in Prague.

**Ueber Soziologische Arbeitsmethoden in der Erforschung von Problemen der Aerztlichen Allgemeinpraxis** (Sociological Working Methods in Research on the Problems of General Medical Practice). FRITZ GEIGER, *Münchener Medizinische Wochenschrift*, Vol. 103, No. 8, pp. 411-415 (Feb. 24), 1961.

General practice is becoming increasingly a part of scientific medicine, a proper field of research, with investigators, dynamics, and working methods of its own. Yet the vast field of general practice is still to a large extent scienti-



fically unexplored. If general practitioners themselves are to undertake scientific research in that area, their first task must be to establish adequate methods and a technique and terminology proper. Among the many "standard methods" for general practice research, the sociological methods must certainly be taken into consideration. Discussed in this article are the following methods offered by modern sociology: (1) interview, (2) observation, (3) experiment, (4) analysis of content, (5) quantitative analysis, (6) sociometrics, (7) case studies, (8) sampling, (9) group experiments, (10) inquiry (enquetes, questionnaires, etc.), (11) public opinion research, (12) action research, (13) panels, and (14) situation analysis. The author shows that modern sociology can decide whether the medical material selected is representative or nonrepresentative and that it can provide essential contributions to the evaluation of facts, as well as to the prevention of their distortion, even in the so-called purely medical investigations.

**La Thérapeutique par la Parole dans l'Epopée Homérique** (Therapy by Word in the Homeric Epos). PEDRO LAIN ENTRALGO. La Presse Médicale, No. 57, pp. 2245-49 (Dec. 24), Paris, 1960.

Lain Entralgo, Professor of the History of Medicine at the University of Madrid, studies in this essay the Homeric concept of disease (*nousos*), medical treatment, and the use of the spoken word for therapy, as they appear in the Greek epic. A thorough scrutiny of the text of both *Iliad* and *Odyssey* reveals four different manners in which disease is conceived and interpreted: sometimes it is seen as the immediate effect of traumatism (in the case of injuries, for instance, especially those inflicted by weapons; 172 such instances have been

counted in both poems), or as the natural consequence of given circumstances; other times diseases are presented as the tangible sign of divine wrath, or as the manifestations of demoniac activities. Yet whatever the causes attributed to it, one must ask, as Dr. Entralgo points out, of what consists really, for the Greek poet, the vital aspect of disease to which the term *nousos* refers? This concept seems to correspond roughly to the various interpretations of disease found among primitive peoples, which have been classified by F. E. Clements into the following three principal groups: (1) loss, or evasion, of the patient's *anima*; (2) magic penetration of the body by some object; (3) possession by evil spirits. The Homeric concepts of medical treatment are closely related to the multifarious appearances of disease. Yet, since Greek medical thought always preserves a direct connection with the idea of nature, it is necessary first to analyze the vision of nature which underlies Homeric therapeutics. The various subjects of this vision of nature—oceans, rivers and clouds, plants, animals and man—present so many common traits that their different aspects may be divided into four main groups: (1) mutability; (2) the "divinity" (or divine intervention) of the movements of natural beings; (3) the aging of worldly beings; and (4) the outline of laws and patterns which control the movement of natural realities. This scheme is supported by numerous examples extracted from both Homeric poems. It is Dr. Entralgo's conclusion that for Homer perceptible reality is mutable, sensitive to the action of the gods, and subject to certain, regular aging processes. This, then, is the framework of the "therapeutic thought" of the Greek epos. As to medical practice and therapy which appear in the *Iliad* and the *Odyssey*, they can already be

divided into the main branches of surgery, pharmacology, and dietetic, but Dr. Entralgo analyzes here mainly two therapeutic practices less known or studied: *catharsis* and *incantation*, of which numerous descriptions can be found in both poems. The question of whether the cathartic rites in Homer's work are definitely oriented toward the curing of an illness is answered by the author in the affirmative (in spite of differing opinions of several philologists and historians of religion), on the basis of the behavior of the principal Homeric heroes confronted by the Pest in the First Canto of the *Iliad*, and other examples. The use of *incantation*, on the other hand, presents definitely a magic character. Although the Greek word for incantation, *épodê*, appears only once in Homer's work (in the *Odyssey*, XIX, when Ulysses, his leg injured by a wild pig, is surrounded by the maidens who, by chanting incantations, stop the flow of black blood), there are numerous instances of verbal formulas with magic character spoken or chanted in the patient's presence in order to cure him. Furthermore, the use of the word for healing purposes is not limited to incantation in the Greek epos. There are two more ways to apply verbal expression for therapeutic ends: the plea for health in form of a prayer addressed to the Gods, and the comforting conversation which has a therapeutic effect on the patient. Both differ radically from the magic *épodê*. Greek culture of later centuries shows, especially in Socrates and Plato, the exceptional therapeutic value accorded to the word.

**Un Cambio Inminente en la Medicina Actual** (An Imminent Change in Today's Medicine). P. BUSSE GRAWITZ, M.D. La Prensa Médica Argentina, Vol. XLVII, No. 35, pp. 2369-74 (Aug.), 1960.

An imminent and, in the opinion of Prof. Grawitz, unavoidable change in medical science is seen in cellular pathology being replaced by molecular pathology. This transformation, invalidating Virchow's and Cohnheim's theories, is bound to alter radically medical concepts in a vast area of studies. In support of this thesis, a series of experiments and observations in the field of inflammatory morphology are described. Their results, according to the author, confirm the following: (1) that all inflammatory cells are formed *in situ*; (2) that not a single leukocyte emigrates from adjoining vases to the inflammation zone.

**General Practice Tomorrow. Learning about Medical Care.** ROBERT LOGAN, M.D. The Manchester Medical Gazette, Vol. 40, No. 1, pp. 12-15 (Oct.), 1960.

In view of the heavy criticism directed from all sides against the present methods and objectives of medical training and, bearing in mind that the term "general practitioner" covers now about half of the doctors active in his country, Dr. Logan (Reader in Social Medicine at the University of Manchester) speculates on what might be done to improve the present situation—first from the theoretical and then from the practical point of view. Medical education, he points out, more than any other, is *vocational*: not only the body of knowledge but also its application must be taught, and medical knowledge is nothing if it is not intended to bring it to the aid of suffering humanity. The trouble now with medical education is that advances in the science itself have fundamentally changed the point of its application. Many of the new therapeutic techniques applied in the hospitals depend for their success to a large extent on early diagnosis. Therefore, the greatest importance is now increasingly attached to the specialized skills needed for pre-symptomatic screen-

ing and early diagnosis outside the hospital. The advent of scientific medicine, especially chemotherapy, has now produced marked differences between the typical hospital case-load and the patients treated at home. The author stresses the point that, although the hospital will necessarily continue to be the focal point of medical education, a place must also be found for the study and demonstration of nonhospitalized morbidity. To meet the new and challenging functions which medical progress is thrusting upon him, the student needs re-orientation in the particular application of diagnostic techniques appropriate to the field of general practice; he needs to be aware of the fact that in general practice—unlike the hospital—the same tool is often used for different goals. It is also of the greatest importance—and often means a crucial decision—to know *when* to call in a specialist, and which one is needed. In the field of social therapy the student of general practice needs to learn the importance and use of social skills, especially how to cooperate with the other agencies so much involved today in the long-term, after-hospital care of chronic degenerative diseases. This role needs special skills which cannot be acquired until it is fully seen and its importance acknowledged. Some suggestions are made how to integrate these objectives of learning into a teaching program, without adding to the already heavy burden carried by today's medical student.

#### Teaching Diabetes in Medical Schools.

Proceedings of the Diabetes Program Director's Workshop. ARTHUR R. COLWELL, SR., M.D. *Diabetes*, Vol. 9, No. 5, pp. 405-15 (Sept.-Oct.), 1960.

The Diabetes Program Director's Workshop, held in Los Angeles, Jan. 22-23, 1960, was sponsored jointly by the American Diabetes Association and the

National Institute of Arthritis and Metabolic Diseases. It was concerned with methods of education, research, and care of diabetic patients in American medical schools. Its primary purpose was an interchange of useful information among educational institutions. Two main principles were guiding this program: (1) the tacit understanding that the earlier and more efficient the educational process the better the product; (2) the idea that free communication among intelligent and interested people yields good dividends. Although their immediate focus was the teaching and training of diabetes in medical schools, the discussions went sometimes beyond medical school education. A number of well established diabetes programs at various medical schools (e.g., Harvard, University of Washington, University of Pittsburgh) were described in detail at the conference and are summarized in the present report. Six seminars on different aspects of teaching were also held and are discussed here. The teaching methods and objectives described represent the combined thinking of participants in the Conference, chiefly those responsible for diabetes teaching in American medical schools. The author points out, however, that the ideas expressed do not necessarily reflect always the policies and objectives of the Diabetes Graduate Training Grant Program of the National Institute of Arthritis and Metabolic Diseases.

#### Pediatric Education at the Crossroads.

S. Z. LEVINE, M.D. *American Journal of Diseases of Children*, Vol. 100, No. 5, pp. 39-44 (Nov.), 1960.

In 1958, Dr. Robert Aldrich compiled a "Survey of Pediatricians in the U.S." covering more than one-fifth of all practicing pediatricians. One of the questions asked of almost 2,000 pediatricians was: "How does your practice differ

from what you had anticipated when entering pediatrics?" Of the 1,164 answers returned, less than 36 per cent (mostly in the older age groups) reported there was "no significant difference"; 64 per cent, that they had to face unanticipated problems, including the following: an unexpectedly high percentage of well patients; excessive working hours; a high ratio of emotional and behavioral problems; lack of professional status; inconsiderate parents, etc. In his Presidential Address to the American Pediatric Society, Dr. Levine raises the question why pediatrics seems to have lost most of the appeal this specialty formerly held for promising young doctors (in a recent issue of *Medical Economics*, it was even headlined "Medicine's Most Frustrating Specialty"). The dilemma, it is pointed out, is similar to Dr. Frankenstein's, in the sense that the enormous, swift advances made in pediatrics in the last 3 decades (at the same time as the progress in public health, social legislation, community development, etc.) have considerably reduced childhood morbidity and mortality rates, giving the child population in hospital and waiting rooms a very different appearance. In 1930, twenty out of 100 children in a New York hospital ward would have suffered from nutritional problems; 70 from infectious disorders. In 1960, there were, perhaps, only five nutritional and twenty infectious cases among the same number of hospitalized children, while the greater part suffered from conditions such as prematurity, congenital anomalies, hemolytic disease, endocrine disorders, etc. In a pediatrician's waiting room, on the other hand, according to Dr. Aldrich's survey, two-thirds of the patients were either in good physical health or suffering from cold or stomachaches. The conclusion for many doctors seems to be that the practicing pediatrician has outlived his

usefulness, although he could still play a major role as researcher, teacher, or public health worker. A diametrically opposed view is held by the author. The fact that progress in modern pediatrics as well as in social medicine "swept away the lion's share of major organic disease in children" is seen by him not as an obstacle to future practice but rather as an advantage and a challenge. However, no matter which view of American pediatrics is taken, the question has become so complex that it deserves full debate by the American Pediatric Society. Meanwhile, a few recommendations are made as to the direction undergraduate and graduate medical education should take if preparation of the pediatricians for a more rewarding practice is to remain one of its primary goals.

#### **Patient Referral to a University Clinic:**

**Patterns in a Rural State.** T. F. WILLIAMS, M.D., K. L. WHITE, M.D., L. P. ANDREWS, M.D., E. DIAMOND, Ph.D., B. G. GREENBERG, Ph.D., A. A. HAMRICK, and E. A. HUNTER. *American Journal of Public Health*, Vol. 50, No. 10, pp. 1493-1507 (Oct.), 1960.

The present report studies the role of the university clinic in providing medical care to its surrounding area, in a predominantly rural state, with special emphasis on the referral processes as primary determinants of this role. A preliminary description of this process and of certain variables which affect it is presented, as observed in the General Clinic of the North Carolina Memorial Hospital, which is associated with the University of North Carolina Medical School. This clinic serves as a comprehensive diagnostic and consultant center for ambulatory patients referred from the eastern two-thirds of the state. The method applied in this investigation,

described in detail in a previous publication (cf. Andrews *et al.*, *Am. J. Public Health*, 49:634-43, May, 1959), involved, in brief, interviews of a representative sample of physicians and of the patients they referred, as well as examination of relevant material in the patient's medical records. According to the data thus obtained, physicians' reasons for referral can be grouped as follows: (a) referrals initiated by physicians for specific reasons which indicate some degree of delineation of the problem prior to referral; (b) referrals initiated by physicians for nonspecified reasons which seem to indicate awareness of a problem warranting referral; (c) referrals initiated primarily by the patient either by direct request or through recognition by the physician that there has been loss of rapport. The evidence obtained also indicates that approximately 50 per cent of referrals nominally initiated by physicians were made primarily on the patient's suggestion. A specific, physician-initiated reason for referral was found only in about one-fourth of the cases. An important determinant appears to be the distance from the medical center: referrals from greater distances were largely for specific physician-initiated reasons, whereas referrals from nearby were largely patient-initiated. The views of general practitioners about their patterns of referral coincided more closely with the data obtained through the sampling of patients than was true for specialists. Among other observations having a bearing upon the consultative and teaching role of the university clinic, the fact is mentioned that, for 58 per cent of the referrals in this sample, no medical information was forwarded by the referring physician and that 54 per cent of the patients had not returned to a continuing relationship with the former after the clinic work-up was completed.

#### Medical Specialism and the Boards.

MARCUS RAYNER CARO, M.D. Archives of Dermatology, Vol. 82, pp. 521-25 (Oct.), 1960.

Specialism in medicine is here to stay, in spite of the conclusions sometimes reached by conferences of experts, as, for instance, at the 1959 "Conference on Specialism in Medicine," where the Specialty Boards, in particular, came in for considerable criticism (cf. *J.A.M.A.*, 170: 283-313, 1959). Discussed in this article are the ways and means by which American Specialty Boards, particularly the Board of Dermatology, have tried to eliminate one of the greatest evils of specialization—the rapid increase in poorly trained, self-styled specialists. Also examined in this connection are the objectives, functions, and activities of the "Advisory Board for Medical Specialties" which was organized in 1933 by four Specialty Boards (Ophthalmology, Otolaryngology, Obstetrics and Gynecology, and Dermatology and Syphilology), and four national organizations (Assoc. Am. Med. Colleges; Federation of State Medical Boards; Am. Hospital Assoc., and the National Board of Medical Examiners). Since then, fourteen additional primary Specialty Boards have become members, as well as the Council on Medical Education and Hospitals (1959). The propriety of including these national organizations in the Advisory Board is discussed. It is also pointed out that there exists the danger that the Advisory Board may eventually become subservient to some of its component national organizations who tend to keep their representatives in office for longer periods of time; these, because of their long experience, may then come to yield an influence far out of proportion to their relative number. Furthermore, in spite of great vigilance exerted during the recent revision of the constitution and by-laws, there will



always be the possibility that the Advisory Board develop into a Governing Board for Medical Specialties. The author, having attended the meetings of the Advisory Board and its Committee of Standards during the past 9 years, discusses also some of the major, time-consuming problems dealt with at these meetings, such as the splintering of specialties or the repeated efforts by undesired groups to organize their own approved Specialty Boards. Among the problems of mutual interest recommended by the author to the consideration of the Advisory Board, "in this critical period of great sociological and medico-political instability," is the urgent need for the establishment of a "climate of common sense and fair play in the delineations of medical specialties," both in theory and in practice.

**Health Problems of the Aging in the Medical School Curriculum.** MICHAEL M. DACSO, M.D. *Excerpta Medica*, Sec. XX, pp. 243-245 (May), 1960.

The management of the chronically ill, the crippled, and the aged are subjects not adequately covered at present in medical curricula. Yet the lack of adequate teaching in this field is of great practical importance, since future generations of doctors must inevitably deal with a world of which old people, with their chronic and disabling diseases, constitute an increasingly large part. To be of service to the aged the doctor has to go beyond the boundaries of what is technically called health or disease and become actively interested in social, economic, and emotional problems, i.e., the "total welfare" of his patient. A proper training for this task must be envisaged from now on. However, the author does not believe that the health and related problems of the aged, complex and numerous as they may be, require at present

the creation of a new specialty (though geriatrics might well emerge some day as an independent discipline). Dr. Dacso (Professor of Physical Medicine and Rehabilitation at New York University-Bellevue Medical Center), presents in this paper an experimental plan which could be considered as a constructive first step toward the teaching of effective medical and surgical management of the aging patient. Briefly outlined, it calls for the assignment of a teacher in every basic science and clinical department, who is interested in old people from his own specialized viewpoint. For the purpose of coordinating this inter-departmental approach to the teaching of geriatrics, a person of senior professorial rank should be appointed. Such a co-operation and coordination would not only provide an efficient and uniform teaching method, presenting to the student all the aspects of this important matter, but they would also help attain a deeper comprehension of the fundamental geriatric problems which so far have not been fully explored. Also briefly pointed out is the international significance of geriatric problems which, unlike other international health problems, are more acute in the developed than in the under-developed countries. The suggestion is made that international health organizations, recognizing the urgent character of the educational need in this matter, call an international conference concerned exclusively with the problems of teaching the geriatric concepts in the medical schools and allied centers all over the world.

**Über Ärztliche Haltung und Handlung** (On Medical Attitudes and Actions). H. VON KRESS, M.D. *Deutsches Medizinisches Journal*, Vol. 11, No. 18, pp. 545-551 (Nov. 20), 1960.

The concepts of medical responsibility



and ethics in our time are discussed by Dr. von Kress (Director of the *Medizinische Klinik*, at the Free University, Berlin) in the light of their historical evolution. Some examples, dating from the times of Plato and Aristotle up to the 18th and 19th centuries, show that fundamental changes in regard to these concepts have been slow to break the barriers erected by each period's prevailing philosophic and religious viewpoints. Today, the enormous increase in medico-scientific knowledge and techniques has created new responsibilities for the medical profession which often may lead to conflicts of conscience the practitioner of earlier times has never known. Some cases of conflicting medical ethics are discussed, as, for instance, the problem of whether or not to prolong the life of an incurable patient at any cost, even when this means only prolonging suffering and pain; whether or not to apply some new diagnostic techniques or therapeutic methods which create a certain serious risk for the patient, etc. In these and other cases the doctor finds himself in a situation of conflict between medical capacity (*Können*) and medical permissibility (*Dürfen*). The decision lies with the doctor alone, it must be taken on moral grounds only, since strictly legal considerations are of no avail here. The problem of medical professional freedom is viewed by the author in terms of two principles, well known in medical history since its earliest times but whose significance has been intensified in our days: (1) *Salus aegroti suprema lex*, and (2) *salus publica suprema lex*. Consideration of the individual rights of the patient, a substantial part of the first principle, must suffer significant restrictions when applying the second. The fundamental question is whether the modern practitioner is able to harmonize these two principles

or whether he is faced, most of the time, with an "either-or" decision only. A look through recent medical literature inclines the author to believe that the latter is true most of the time today and will become even more so in the future.

**Teaching Institute in Anatomy, Biochemistry and Physiology.** The Georgetown Medical Bulletin, Vol. 14, No. 2, pp. 97-111 (Nov.), 1960.

In May, 1960, Georgetown University School of Medicine sponsored an international teaching institute on the "major courses of first-year medical studies." Short keynote addresses, delivered by the chairmen of each department, were followed by three panel discussions and their summaries. In a final synthesis the chairman of the Committee on Education underlines the following points which seemed of special importance: (1) There appears to exist honest concern over the proper use of clinical situations in teaching biochemistry and physiology. Whereas the value of some clinical thinking during the preclinical years cannot be denied, the material must be carefully selected, and the true preclinical theme must never be left out of sight. (2) The question was raised of how "pure" the preclinical sciences should be. Everybody seemed to agree that medical education should not be divided strictly into two segments but ought to be a continuum of 4 years or more of study. (3) The lecture came under attack as a poor teaching method, but it became clear that a majority believed that it has a definite place in the medical curriculum and that the fault may lie with the lecturer rather than the method. (4) At both the biochemical and physiologic sessions the preclinician's orientation was discussed: Should he work backward or forward with the clinician? It was held, in gen-

eral, that the preclinician, while looking backward into the very basic disciplines must also manifest interest in the clinical education of the student (the reverse should apply to the clinician). (5) The Anatomy session, primarily concerned with effecting a proper distribution of time, also discussed various teaching methods. It was felt that more emphasis should be put on the chest, heart, and neck and less on the extremities. The general belief was that there is a definite need for more anatomy teaching in the clinical years. (6) The most important aspect of the Biochemistry session was its very lively discussion of the problems of basic principles. The unanimous opinion was that the teaching of biochemistry should be extended through all 4 years but that the discipline must remain truly basic (although the clinician could and should be used and seminar teaching ought to be encouraged). (7) From the great amount of discussion on the physiologic panel the importance of teaching techniques could be derived, as well as the need for continuation of physiology teaching throughout the curriculum. (8) Both the physiologic and the biochemical panels raised the question of the let-down in the teaching of these disciplines during the second year and suggested that some revision of pathology and pharmacology teaching should be given serious consideration.

**The "Farquharson Committee Report" and the Future of Canadian Medical Research.** *Le Journal de l'Association Médicale Canadienne*, Vol. 83, No. 24, pp. 1268-1270 (Dec.), 1960.

The critical inadequacy of financial support and facilities for medical research has long been a matter for serious concern to the deans of Canada's medical schools and to others involved in the

administration and conduct of that vitally important facet of medical science. In 1957, the deans, through the Association of Canadian Medical Colleges, presented a brief to the Ministers of National Health and Welfare, Veterans Affairs, Trade and Commerce, and National Defence, recommending the government appoint a committee to review the methods by which it supported research in medicine; to study the adequacy of this support, and to recommend future policies. In February, 1958, such a committee was appointed, composed of medical scientists from all sections of the country (under the chairmanship of Prof. R. F. Farquharson of Toronto). The findings of this committee were embodied in a report, now known generally as "The Farquharson Committee Report" (presented in November, 1959, to the Privy Council on Scientific and Industrial Research), and its main points are outlined here. The Committee, after reviewing some of the outstanding advances in medical knowledge contributed by Canadian research scientists in recent decades, points out that none of these was the product of a single investigator but represented the joint efforts of clinicians and laboratory workers in the basic sciences, most of them university teachers. Teaching and research being inseparable, modern universities must promote research as well as instruction. However, unless medical schools can provide the financial background and facilities for their teachers to plan and develop their ideas in medical research, they will fail to attract or hold talented young graduates, and medical teaching and research will deteriorate in Canada. As a result of its thorough and comprehensive studies, the Committee reached the following conclusions: (1) That the present level of government support for research falls far short of requirements; (2) that many important research proj-

ects are not supported because of lack of funds; (3) that present stipends for fellowships are too low and not numerous enough; (4) that Canadian medical schools lack funds to employ an adequate research staff; (5) that there is a need for fluid research funds to be administered by medical school deans; (6) that research space is inadequate in all medical schools. In concluding its report, the Committee recommended that a Medical Research Council be created under terms similar to those of the National Research Council, to assume among its responsibilities those now assigned to the N.R.C. Division of Medical Research, and that its initial budget for 1960-61 be set at \$4,000,000, with provision for substantial increments. As a result of the Report, the National Research Council announced in November, 1960, the dissolution of its Division of Medical Research and the establishment of a *Medical Research Council*, with responsibility for all activities conducted so far by the former, pending appropriate legislation to establish its complete independence. (Prof. Farquharson has been appointed as its first Chairman).

**Le 13<sup>e</sup> Meeting Annuel à Edimbourg de la Fédération Mondiale pour la Santé Mentale** (The 13th Annual Meeting at Edinburgh of the World Federation for Mental Health) H. BARUK, M.D. *Revue d'Histoire de la Médecine Hébraïque*, No. 49, pp. 101-110 (Oct.), 1960.

Founded in 1948, the World Federation for Mental Health, with its center in London, comprises 123 affiliate scien-

tific societies and 1800 associate members from all over the world. Its main purposes are to investigate the factors affecting mental health; to promote progress in the treatment and assistance of mental patients all over the world; and to study the social and moral conditions which may play a role in the mental equilibrium of individuals and communities. Following along these lines, meetings are divided into two parts: one concerned with psychiatric and psychological technique, including a number of reports and discussions; the other dealing with what has been called "psychiatric humanism," that is, the problems derived from the *rappports* of psychiatry with the different civilizations, creeds, and other spiritual factors. Professor Baruk (of the Faculté de Médecine, Paris) presents a detailed account of the topics discussed in both sections at the Edinburgh Meeting, in 1960. During the first part, the following papers were read and discussed: (1) The Problem of the "Day Hospital"; (2) Occupational Therapy; (3) Group Therapy; (4) The Effects of Rapid Cultural Changes (a Social Study of Maurice Island); (5) Problems of Childhood and Education. The second part (named "Hemingway Memorial Conference" in memory of Dr. Mary Hemingway who had a significant role in its orientation), which features each year a different speaker invited to present the development of a civilization essential in the history of mankind, was in charge of the author, who read a paper on "The Hebraic Civilization and the Science of Man." A summary of it can be found in this article.

## NEW BOOKS

### Abstracts

**Textbook of Medicine.** Edited by SIR JOHN CONYBEARE and W. N. MANN. 13th ed. London: E. & S. Livingstone Ltd., 1961. Distributed by Williams & Wilkins Co., Baltimore. 964 pp. \$10.00.

The thirteenth edition of this well known work is a considerably rewritten and expanded volume. It is longer than its predecessor by 130 pages. An effort has been made to bring its entire contents up-to-date and to continue to provide necessary information not only for students but for practitioners. Four of the contributors to the twelfth edition have withdrawn, and seventeen contributors are responsible for this edition. Some new sections have been added, some out-of-date material has been eliminated, and all duplicated material has been rewritten. Even the plates and illustrations have been considerably revised.

**A Textbook of Pathology. An Introduction to Medicine.** By WILLIAM BOYD. 7th ed. Philadelphia: Lea & Febiger, 1961. 1357 pp. 792 illustrations. \$18.00.

This edition of a well known text is almost completely rewritten and is reset in double-column format. The chapter on tumors has been expanded to two; the first on General Principles and Pathology of Neoplasia, the second on Specific Tumors. Part I is titled "Principles of Pathology," and Part II is "Regional Pathology." Newly rewritten "General Considerations" open several chapters in Part I and all chapters in Part II. A helpful "Outline of Contents" precedes every chapter. Much of the material has been oriented toward physiological considerations.

**Anatomy and Physiology.** By DIANA C. KIMBER, CAROLYN E. GRAY, CAROLINE E. STACKPOLE, and LUTIE C. LEAVELL. 14th ed. New York: Macmillan Company, 1961. 743 pp. \$6.95.

Many of the chapters for this edition have been either completely reorganized or rewritten. Every effort has been made to maintain the characteristic organization and clarity of previous editions. Many of the illustrations have been replaced by new ones, and the number has been increased from 388 to 409. New diagrams include charts illustrating physiological processes, and, in response to many requests, the muscle functions are summarized by diagrams. The general organization of the chapters is in five units. Unity of physiological and anatomical knowledge and thought is the objective of this combined text. Questions for discussion have been placed at the close of each chapter. A separate teacher's guide to accompany the book has been prepared by Miss Leavell.

**Elementary Textbook of Anatomy and Physiology Applied to Nursing.** By JANET T. E. RIDDLE. London: E. & S. Livingstone Ltd., 1961. (Available through Williams and Wilkins Company, Baltimore.) 124 pp. \$3.50.

This book is based on lectures given to first-year nursing students. An attempt is made to give the student a simple over-all picture of the human body. Constant reference is included concerning its application to nursing.

**Manual of Clinical Bacteriology.** By ALEXANDER KIMLER. Philadelphia: J. B. Lippincott Company, 1961. 192 pp. \$4.75.

This paper-back manual is a selection of techniques and media for routine approach to the isolation and identification of pathogenic agents of disease. The aim has been to produce an effective, compact manual, not a comprehensive text, to meet the needs of those whose responsibility is the teaching and the supervision and/or the practice of clinical bacteriology. Its format includes enough of the pathologic aspects of infection to make the sources of clinical material

logical, and this is complemented first with morphology and smears and then with good culture techniques. No pretense is made for the completeness of this manual. It is conceived as an aid for the training of the bacteriology technician.

**Lehrbuch Der Inneren Medizin.** Edited by HELMUT DENNIG. Stuttgart: Georg Thieme Verlag, 1961. (Available in U.S.A. through Intercontinental Medical Book Corporation, New York 16.) In 2 volumes. Vol. 1, 978 pp. \$12.85. Vol. 2, 885 pp. \$12.85.

This textbook in the German language is written both for students and for practitioners of medicine. The contributors are Doctors M. Broglie, H. Dennig, K. Hansen, W. Gronemeyer, F. Grosse-Brockhoff, N. Henning, A. Heymer, A. Kleinschmidt, H. Reinwein, F. Schellong, G. Schaltenbrand, and H. Schulten.

**Re-educative Treatment of Suppression Amblyopia.** By KEITH LYLE, CYNTHIA DOUTHWAITE, and JILL WILKINSON. London: E. & S. Livingstone Ltd., 1960. Available through Williams & Wilkins Co. Baltimore. 135 pp. \$5.00.

This book is an English version of the French work by Jean Sedan. It is considerably scaled down from the French version. The book contains visual exercises designed to make the patient concentrate on the printed matter, or on the arithmetical or pictorial problem presented to him, and to detect certain mistakes in the text or figures, or differences between two pictures, etc. It also includes certain tracing exercises which help to improve visual orientation by the association of eye and hand movements. The main use of this book is for home exercises, but it is essential that full explanations as to its value and detailed instructions as to its use should be given by the ophthalmologist in the clinic, where it can also be used under supervision.

**Lectures on Experimental Psychiatry.** Edited by HENRY W. BROSN, with 17 other contributors. Pittsburgh: University of Pittsburgh Press, 1961, 361 pp. \$7.50.

The lectures in this volume were given during the Pittsburgh Bicentennial year—most of them at a Conference on Experimental Psychiatry at the Western Psychiatric Institute and Clinic from March 5-7, 1959. The range of topics is wide, reflecting the interests of the varied group of authors, and an effort is made to provide the reader with some information not only concerning the content and methods available in the field of human behavior but also about the climate of opinion in which the investigator lives and works.

**Intra-abdominal Crises.** By KENNETH B. KEELE and NORMAN M. MATHESON. Washington, D.C.: Butterworths, 1961. 379 pp. \$10.00.

For the purpose of this book an intra-abdominal crisis is considered to exist when the symptoms suggest an abdominal emergency. This condition calls for one of the commonest anxieties of doctors in practice. The authors have had much experience in a hospital taking acute cases "off the street" unselected for purposes of interest, age, or specialty. This book is written to be of use to those in general practice, or in the hospitals, who perform the vast bulk of general medicine. The principal object of the book is to analyze the problem and to indicate the lines of early management.

**Chest Pain. Systematic Differentiation and Treatment.** By NATHANIEL E. REICH and RUDOLPH E. FREMONT. New York: Macmillan Co., 1961. 358 pp. \$9.00.

The anatomic approach to the differential diagnosis of chest pain is not only practical but also logical. The thorax and its contents are more easily visualized, moving from the outermost anatomic layers to the innermost structures. This unique and encompassing approach to the systematic diagnosis of chest pain should prove most valuable to the general practitioner, internist, and cardiologist. However, it may also be helpful to many other specialists, such as the chest physician, thoracic surgeon, orthopedist, dermatologist, neurologist, and even the gastroenterologist, all of whom become involved in diagnostic

problems in this large area at one time or another. More common disease processes have, of necessity, required more detailed discussion. A brief, but complete, consideration of current therapy completes each discussion. Theoretical aspects have been omitted generally or have been dealt with briefly, when necessary. Pathophysiology and the mechanisms of specific pains have been given due consideration in order to lay the groundwork for a better understanding of each disease process.

**Calculations in Pharmacy.** By SUE H. ROUSE and M. GEORGE WEBBER. Philadelphia: J. B. Lippincott Company, 1961. 234 pp. \$5.00.

This book represents in many respects a different approach to the subject than other texts currently available. Much of the change is in rearrangement of the order of the topics considered. The primary objective of this rearrangement is to establish a firm foundation for the student in a stepwise manner. The material included and the order of presentation are in current use in the authors' courses.

**Human Factors in Jet and Space Travel. A Medical-Psychological Analysis.** Edited by S. B. SELLS and CHARLES A. BERRY with 13 contributors. New York: The Ronald Press Company, 1961. 367 pp. \$12.00.

This book was produced to provide up-to-date information in a systematic form on the human problems of high-performance flight. It is intended to present a comprehensive view of the human factors, to give physicians, physiologists, engineers, flight crews, and other interested persons a better perspective of what is involved in putting man in a foreign environment and then insuring his well-being there. A second purpose is to provide physicians with a reference book on aviation medicine and related human-factors problems. Thirdly, the treatment of most topics should be of interest to students who desire information concerning scientific careers in specialties related to aviation and the approaching era of space travel. The book not only describes

solutions already worked out for known problems of space travel but also presents problems still unsolved, or only anticipated, with possible approaches to finding answers. The psychological, physiological, medical, and mechanical problems of flight are approached from the practical viewpoint of establishing standards, techniques, and objectives for dealing with them. Aviation medicine's contributions to military, civil, and commercial programs for jet and rocket flight are discussed as they bear on the selection and training of crews, the abnormal physical and mental strains of space travel recognized today and anticipated tomorrow, and how to cope with the demands of this environment.

**Adrenergic Mechanisms. Ciba Foundation Symposium.** Edited by J. R. VANE, G. E. W. WOLSTENHOLME, and MAEVE O'CONNOR. Boston: Little, Brown & Co., 1961. 595 pp. \$12.50.

These symposia were held March 28-31, 1960. Some 45 papers were presented and discussed, covering a wide range of research interests from experimental work to clinical trials of a wide range of endogenous substances in synthetic drugs. There were 2 days for formal presentations and brief discussion at the Wellcome Building on the 28th and 29th of March, attended by some 300 people, and 2 further days at the Ciba Foundation for unscripted discussion by one-tenth of this number.

**Explorations into the Nature of the Living Cell.** By ROBERT CHAMBERS and EDWARD L. CHAMBERS. Cambridge: Harvard University Press, 1961. 329 pp. \$8.00.

The findings of a life time's research by Robert Chambers and his co-workers are here assembled for the first time and discussed in relation to recent advances in cell biology. The book focuses attention on the intact living cell. Dr. Robert Chambers was one of the foremost developers of the micro-manipulative technique which made it possible to operate on protoplasm while it is alive, and to determine physical and chemical reactions within the cell. Much of the material of this book was compiled by



Dr. Robert Chambers before his death in 1957, and completed by his son, Dr. Edward Chambers.

**Impressions of European Psychiatry.** By WALTER E. BARTON, MALCOLM J. FARRELL, FRANCIS T. LENEHAN, and WILLIAM F. McLAUGHLIN. Washington, D.C.: American Psychiatric Association, 1961. 128 pp.

This book is a full report of a team of three American psychiatrists and one psychiatric nurse who visited Western Europe during 1958. Its content encompasses the substances of most reports which have come to the attention of the authors. It is dedicated to and published for the information of those persons who staff the mental hospitals of North America, as well as others who seek to improve the lot of the mentally ill.

**Medical Almanac 1961-62.** Compiled by PETER S. NAGAN. Philadelphia: W. B. Saunders Company, 1961. 514 pp. \$5.00.

This handy-sized paper-back edition is a compilation of general information, statistics and other data relating to medical care, medical education, medical organizations and literature, incidence of illness, and economic aspects of medical practice. The purpose is to bring together in one volume a wide range of descriptive and statistical material about the nonclinical side of medicine. It is designed to be a time-saving tool for physicians, medical administrators, government officials, librarians, editors, writers, and all those who have need for facts about the profession and its various phases. This is a first edition of what, it is hoped, will be a regularly revised reference book. To many in medicine, and to many others, this book may serve not only as a reference source but a pleasant and rewarding idle-hour companion.

**Metabolic Effects of Adrenal Hormones.** Ciba Foundation Study Group No. 6. Edited by G. E. W. WOLSTENHOLME and MAEVE O'CONNOR. Boston: Little, Brown & Co. 1961. 103 pp.

This conference was held July 15, 1960, in honor of Professor George W. Thorn and, significantly, in the year of the centenary of the death of Thomas Addison. It is made up of five formal papers with discussion.

**Symptom Diagnosis.** By WALLACE MASON YATER and WILLIAM FRANCIS OLIVER. 5th ed. New York: Appleton-Century-Crofts, Inc., 1961. 975 pp. \$15.00.

The purpose of this book, as stated in the preface to the first edition (1927), is threefold: (1) to aid in the diagnosis by making possible a quick reduction in the number of possibilities to a relatively small list; (2) to prevent the oversight of the characteristics of the symptoms of disease. The book is not designed for study, but for quick reference while the patient is being prepared for examination or while he is dressing after the examination. It is not for the library but for the desk and ward, always at hand for ready information. An effort has been made to present symptoms in the most practical way for making a diagnosis. First of all, the symptoms and signs are grouped as regional or general; many symptoms are referred to a particular portion of the anatomy, others cannot be said to belong to any region and are designated, therefore, as general symptoms. The symptoms herein treated cover those of practically all medical and surgical conditions. Laboratory findings not considered. The book, now 34 years old, has been extensively revised and practically rewritten. Tables of differential diagnosis have been interspersed throughout the text and an appendix contains brief descriptions of syndromes and of diseases, symptoms, and signs.

**Disease and Injury.** Edited by LEOPOLD BRAHDY with 25 contributors. Philadelphia: J. B. Lippincott Company, 1961. 464 pp. \$12.50.

The question which each contributor discusses within his field is: Did a given injury cause, precipitate, or aggravate the disease? Injury as a factor in disease is a problem in etiology. It requires investigation as do

other nonspecific factors such as climate, stress, old age, starvation, over-eating, or exercise. One of the purposes of this book is to prepare physicians better to serve as expert witnesses. It is written for physicians, but lawyers will likewise find it useful and an aid in understanding and working with physicians. It should likewise help physicians in their general practice of medicine.

**One Patient at a Time. A Medical Center at Work.** By MILTON L. ZISOWITZ. New York: Random House, 1961. 287 pp. \$5.00.

The setting for this book is the New York Hospital—Cornell Medical Center, an amalgamation of the second oldest voluntary hospital in the United States and a great university medical college. The story of its day-by-day activities in caring for the sick, training doctors and nurses, and searching for better ways to prevent, control, and cure disease is, in effect, the story of all such centers. This book is written in the hope that people in all walks of life will gain a deeper understanding of the work of one such institution, and as a tribute to the many people who have built this great medical center. This book will have a wide appeal, spanning the professional and the lay reader.

**A Guide to Dissection in Gross Anatomy.** By RUSSELL T. WOODBURNE. New York: Oxford University Press, 1961. 162 pp. 13 illustrations. \$3.50.  
This lithoprinted paper-bound dissection

manual was first prepared for students at the University of Michigan Medical School. The present edition is especially adapted for use with Professor Woodburne's *Essentials of Human Anatomy*.

**Man's Presumptuous Brain. An Evolutionary Interpretation of Psychosomatic Disease.** By A. T. W. SIMEONS. New York: E. P. Dutton & Co., Inc., 1961. 281 pp. \$5.75.

This book is not a popular rendering of established scientific views or theories. In fact, most of the views expressed are contrary to current medical opinion. In the main, this book represents the current views of the author without regard to documentation of facts. He requests that the reader interpret this assertive statements as meaning: "Such and such a clinical fact might be tentatively interpreted as suggesting such and such a hypothetical explanation. The book is not meant as a do-it-yourself primer on psychosomatic diseases, but only to provide some insight into the nature of psychosomatic disorders.

## Books Received

**The National Library of Medicine Index Mechanization Project.** Bulletin of the Medical Library Association, Vol. 49, No. 1, January, 1961. Washington, D. C.: National Library of Medicine, 1961.

**The Amazing World of Medicine.** Edited by HELEN WRIGHT and SAMUEL RAPPORT. New York: Harper and Brothers, 1961. 301 pp. \$3.50.

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## MEDICAL EDUCATION NEWS

### from the Medical Schools

#### Alabama

Dr. CHESTER W. WHITE Jr., has been named chairman of the department of anesthesiology. He replaces Dr. ALICE MCNEAL, who will continue in the department as professor.

The new chairman comes to Alabama from Boston where he has been chief anesthesiologist at Boston Lying-In Hospital for the past four years.

#### Boston

A newly endowed chair in medicine, the first such chair to be located at the Boston City Hospital in support of two major medical services, has been established at the School of Medicine with funds provided by a recent bequest to the university. The medical professorship, named for Dr. CONRAD WESSELHOEFT, clinical professor of medicine emeritus, will be filled by Dr. FRANZ J. INGELFINGER. Ingelfinger, who is professor of medicine, will also direct the fifth and sixth Medical Services at the Boston City Hospital.

#### U. of Chicago

The Chronic Disease Hospital, newest of the University of Chicago medical facilities, was dedicated July 12. More than \$1 million already has been allocated for the initial phase of research into chronic diseases in the new hospital during its first year. These studies will be carried out on one floor of the new 104-bed building. Twenty staff members of the university will be assigned to the research program, includ-

ing two dietitians, a social worker, five laboratory technicians, and a biometrist.

Dr. CHARLES HUGGINS, director of the Ben May Laboratory, will go to London in October to receive honors from the Royal College of Surgeons of England. He has been named co-recipient of the Walker Prize, given once every five years by the Royal College for the "best work in cancer research in the preceding five years." The same tribute will go to Dr. LUDWIK GROSS, chief of cancer research at the Veterans Administration Hospital in New York City.

#### Cincinnati

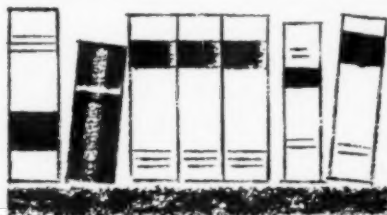
Dr. ALBERT B. SABIN has returned to the campus after conferring with public health officials of several South American governments on use of his oral polio vaccine. Dr. Sabin was invited by the Brazilian Ministry of Health to consult on that country's recent decision to use the Sabin oral vaccine. The University of Brazil at Rio de Janeiro conferred an honorary doctor's degree on Dr. Sabin and while there he lectured at the university's Institute of Child Health and at the National Academy of Medicine and Brazilian Ministry of Health.

#### Colorado

Implementation of the University of Colorado Medical Center expansion plan, which includes construction of a new university hospital, out-patient clinics, and a clinical research wing as well as a major addition to the Denison Memo-

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rial Library and a new children's psychiatric day care center, is to begin shortly, according to Robert J. Glaser, Vice President for Medical Affairs and Dean of the Medical School. The program will ultimately involve expenditure of more than \$20 million. The State of Colorado appropriated \$10.4 million to finance construction of the new university hospital and clinical research wing. These funds, coupled with \$4 million previously made available by the General Assembly, and additional sums from the Public Health Service and the Eleanor Roosevelt Cancer Foundation have provided the \$16 million necessary for Phase I of the building program. Construction for the new hospital is expected to get under way by Nov. 1.

#### **Creighton**

Dr. ROBERT P. HEANEY has been named professor of medicine and chairman of the department. Dr. Heaney also becomes director of the department of medicine at Creighton Memorial-St. Joseph's Hospital. Heaney was on the medical faculties of the University of Oklahoma and Georgetown University before joining the Creighton faculty in 1957.

#### **Albert Einstein**

The College of Medicine has added two surgeons to its faculty. They are Dr. ARTHUR JACOB HELFET of Capetown, president of the South African Orthopedic Association, and Dr. STANLEY MELVIN LEVENSON, chief of the department of surgical metabolism and physiology of the Walter Reed Army Hospital. Both professors will begin their association with the college in the Fall term.

In addition to his teaching position, Dr. Helfet will be director of orthopedic surgery at the Bronx Municipal Hospi-

tal Center. He has been senior lecturer in orthopedic surgery at the University of Capetown.

Dr. Levenson is director of the department of germfree research at Walter Reed's Institute of Research. In connection with this work he will lecture in six European countries in the Fall. This tour will be sponsored by UNESCO.

#### **Georgetown**

Four associate professors in the School of Medicine have been given the rank of full professor. The promotions include: Dr. GEORGE E. SCHREINER, Dr. W. PROCTOR HARVEY, Dr. IRVING B. BRICK, and Dr. CHARLES E. RATH. All will become professors of medicine.

New to the faculty is Dr. ABNER GOLDEN, who has been appointed professor of pathology. Dr. Golden comes to Georgetown from Emory University School of Medicine where he was professor of pathology.

#### **Hahnemann**

The Graduate School of Basic Medical Sciences has been granted \$100,000 over a five-year period by the National Institutes of Health to develop and expand the graduate training program in the department of microbiology. Dr. ALBERT G. MOAT, associate professor of microbiology, has been named director of the program. The grant, which went into effect in July, provides funds to support reassignment of personnel to the training program, and will provide for new part-time and full-time faculty members.

#### **Harvard**

Faculty promotions, retirements, new appointments and citations are among the recent announcements by Dr. GEORGE PACKER BERRY, Dean of the Harvard Medical School.



Dr. GUSTAVE J. DAMMIN, a pathologist whose research has carried him in the area of tissue and organ transplantation and in cardiovascular and renal disease, has been appointed the first Elsie T. Friedman Professor of Pathology. Dr. Dammin has been a member of the faculty and pathologist-in-chief at the Peter Bent Brigham Hospital since 1953. At the hospital, Dr. Dammin will serve as director of a cardiovascular-renal and transplantation center, soon to be established with the help of a half-million dollar grant from NIH.

Dr. HERMAN M. KALCKAR joined the faculty July 1 as professor of biological chemistry. Dr. Kalckar was on the faculty at Johns Hopkins where he was professor of biology and bio-chemistry in the department of biology and the McCollum-Pratt Institute.

Dr. DONALD D. MATSON and Dr. A. CLIFFORD BARGER have attained full professorial rank. Dr. Matson was named clinical professor of surgery and Dr. Barger has been appointed professor of physiology. Both appointments became effective July 1.

Dr. CARL E. TAYLOR, associate professor of preventive medicine and public health, has been granted a year's leave of absence to organize a five-year research study of rural internships in medical colleges in India. Dr. Taylor's headquarters will be the Ludhiana Christian Medical College in Punjab, where he will be visiting professor of preventive medicine.

Dr. ERNEST KNOBIL, who on July 1 became Richard Beatty Mellon Professor of Physiology and chairman of the department at the University of Pittsburgh, has received the 1961 Ciba Award of the Endocrine Society for "meritorious accomplishments in the field of endocrinology."

Three members of the faculty retired on July 1 to become clinical professors,

emeriti. They are: Dr. CHARLES C. LUND, clinical professor of surgery; Dr. PHILIP E. MELTZER, clinical professor of otology; and Dr. PAUL I. YAKOVLEV, clinical professor of neuropathology.

### Illinois

Dr. IRVING SCHULMAN has been appointed professor and head of the pediatrics department. Dr. Shulman, who takes over his new assignment Sept. 1, is presently professor of pediatrics at Northwestern University Medical School and director of hematology at Children's Memorial Hospital. He will succeed Dr. HEYWORTH N. SANFORD, who is scheduled to retire.

### Indiana

The Indiana University Medical Center will begin a stepped-up research program on the diagnosis and treatment of major types of heart disease with funds provided by the National Heart Institute of the Public Health Service. The \$4,383,700 will make possible establishment of a new Heart Research Center, more laboratories, acquisition of highly specialized equipment, and additions to the research staff.

### Iowa

Two new department chairmen were named recently to the medical faculty. Dr. CHARLES HOGBEN will become professor and head of the department of physiology, and Dr. DONALD DUNPHY will become professor and chairman of the department of pediatrics. Both appointments are effective Sept. 1. Dr. Hogben will replace Professor HARRY M. HINES, who has been head of physiology since 1944, and who has now reached retirement age. Dr. Dunphy replaces Dr. WALLACE W. MCCRORY, who resigned to become head of pediatrics at the Cornell University Medical Center.



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**Jefferson**

Dr. ROBERT A. MATTHEWS, professor and head of the department of psychiatry, was killed in an automobile accident June 23. He had been a member of the Jefferson faculty since 1930 and succeeded Dr. BALDWIN L. KEYES as chairman of the department in July, 1958.

**Medical Evangelists**

The last student has been graduated from the College of Medical Evangelists. The 56-year old medical center with campuses in Loma Linda and in Los Angeles, assumed the name of Loma Lima University on July 1, and future graduates will receive diplomas bearing the university name. First classes in the new university will begin in September.

**Miami**

Dr. JOHN K. ROBINSON, assistant professor of internal medicine, has been named interim associate dean of the School of Medicine. Dr. Robinson replaces Dr. WINSTON K. SHOREY, who recently became dean of the University of Arkansas School of Medicine. Robinson has been a member of the UM faculty since 1955.

**Minnesota**

Establishment at the University of Minnesota of a clinical drug evaluation center for the study of compounds affecting abnormal human behavior has been assured by a \$427,804, four-year grant from the National Institute of Mental Health, according to a Minnesota spokesman. Principal investigators for the project are Dr. BURTRUM C. SCHIELE, professor of psychiatry, and Dr. GORDON T. HEISTAD, associate professor of clinical psychology.

**New York University**

Three faculty appointments were announced recently by Dr. S. BERNARD WORTIS, Dean of the School of Medicine. Named professor and chairman of the department of neurosurgery is Dr. JOSEPH RANSOHOFF; appointed professor and chairman of the department of anesthesiology is Dr. VALENTINO D. B. MAZZIA; and to serve as assistant dean of the medical schools is Dr. WILLIAM A. FROSCH. Dr. Ransohoff comes to the NYU School of Medicine from posts as associate professor of clinical neurological surgery, Columbia University College of Physicians and Surgeons, and attending neurological surgeon, the Presbyterian Hospital. Dr. Mazzia has served as associate attending anesthesiologist at the New York Hospital and as assistant professor of clinical anesthesiology in surgery and in obstetrics and gynecology at the Cornell University Medical College. Dr. Frosch, who has been serving as teaching assistant in the department of psychiatry at NYU, will become an instructor in psychiatry when he takes over his duties as assistant dean.

Controlling climate to determine its effect on human skin and general health will be a feature of the Charles C. Harris Skin and Cancer Pavilion to be established in the University Hospital of New York University Medical Center. The patient care, research and teaching program in the new clinic will be under the direction of Dr. RUDOLF L. BAER, professor and chairman of the dermatology department of the medical center. The 19-story, 600-bed university hospital in which the new clinic and the inpatient facilities of the department of dermatology will be housed, is now under construction with completion scheduled for 1962.

**Northwestern**

Plans for a 15-story, \$7.5 million

building for the medical school, and expansion of clinical research through a \$2 million program were announced recently by school officials.

Laboratories and other facilities in the new building will expand the medical school's research and education plant by nearly 50 per cent. Construction of the new building is scheduled to begin next spring. It will be financed by gifts from foundations and, possibly, a grant of \$3 million from the federal government through its National Institutes of Health. According to Dean RICHARD H. YOUNG, the university has asked the government for a grant and if made, the university will be required to raise an equal sum for the building. The Commonwealth Fund of New York has donated \$100,000 for the building. The Fund is also financing the operation, beginning this fall, of a six-year medical school curriculum that will take students from their freshman year of college through to their medical degree.

The Medical School has been allotted a \$2 million grant in a Public Health Service program aimed at enlarging and intensifying clinical research in a broad spectrum of diseases. The research will be conducted at Passavant Hospital, one of Northwestern's five affiliated hospitals, where construction will be started Sept. 1, on a 14-bed research center on the hospital's third floor. Dean Young will be principal investigator for the program in association with Dr. DAVID P. EARLE, professor of medicine.

Dr. JOHN T. GRAYHACK has been appointed chairman of the urology department. He will succeed Dr. VINCENT J. O'CONOR, who is retiring from the post Sept. 1. The appointment coincides with the establishment of the Herman L. Kretschmer Chair of Urology in which Dr. Grayhack will serve. The chair is being named in honor of Dr. Kretsch-

mer, who had donated more than \$1.2 million to Northwestern before his death in 1951.

### Oklahoma

Three new chairmen of basic science departments have been appointed at the School of Medicine. Dr. MARION DEVEAUX, former associate professor of pharmacology and physiology at Emory University, assumed duties July 1 as professor and chairman of the pharmacology department. Dr. FRANCIS J. HARDY, assistant professor of medicine and physiology at Northwestern University Medical School, has been named professor and chairman of the department of physiology and associate professor of medicine, effective Sept. 1. New chairman of the department of microbiology is Dr. L. VERNON SCOTT, professor and a member of the Oklahoma faculty since 1950.

### Oregon

The Medical School has been awarded a \$5.6 million grant by the Public Health Service to establish a broad, coordinated cardiovascular research program in the fight against heart disease. The grant will extend over a seven-year period. Dr. DAVID W. E. BAIRD, Medical School dean, will be chief investigator and Dr. CHARLES N. HOLMAN, associate dean, will be program director. Dr. Baird has appointed Dr. HERBERT E. GRISWOLD Jr., professor and head of the division of cardiology, research coordinator of the program.

Dr. DAVID D. DEWEESE was appointed full-time professor and head of the otolaryngology department, and Dr. BENJAMIN V. SIEGEL, California scientist, was named professor of pathology. Dr. DeWeese, who has practiced otolaryngology with the Portland Clinic since 1944, has served on the faculty for the same

period. He assumed full-time duties July 1. Dr. Siegel comes to Oregon from the University of California School of Medicine where he was associate research virologist in the pathology department.

### **Pennsylvania**

A five-year pilot program, designed to link the basic medical sciences more directly with clinical aspects in the teaching of medical specialties, will be launched in September at the Graduate School of Medicine. The seminar-like teaching program will be introduced in the school's department of internal medicine under the direction of Dr. HENRY J. TUMEN, professor and chairman of the department of medicine. The program will have particular value, Dr. Tumen believes, for doctors from other countries who are enrolled in the school. Under the curriculum, graduate students enroll for two four-month semesters, the first devoted to intensive courses in basic medical sciences. The second semester is devoted chiefly to the clinical and applied aspects of the student's medical specialty. Under the program which Dr. Tumen is introducing, special seminars will be added to his department's teaching program during the first semester to help the graduate doctor correlate his basic science courses with clinical experience.

Dr. RICHARD H. CHAMBERLAIN, professor of radiology, has been appointed chairman of the department of radiology. He succeeds Dr. EUGENE P. PENDERGRASS, who became emeritus professor of radiology on July 1. Chamberlain has been on the faculty since 1946.

### **Rochester**

Dr. ALBERT C. SNELL Jr., has been named to succeed Dr. JOHN F. GIPNER as head of the division of ophthalmology.

Dr. Gipner, who served on the Rochester faculty for 34 years, retired June 30 as head of the division, a post he held since 1931. Dr. Snell joined the Rochester medical faculty in 1944 as an instructor in ophthalmology and assistant surgeon. He became associate professor in 1949.

Three members of the faculty have been given professorial rank. The promotions include: Dr. PHILIP RUBIN, who has been named professor of therapeutic radiology and chief of the division of radiation and assistant physician in Strong Memorial Hospital; Dr. STANLEY M. ROGOFF, named professor of diagnostic radiology and chief of that division at Strong Memorial Hospital; and Dr. ROGER TERRY, named professor of pathology.

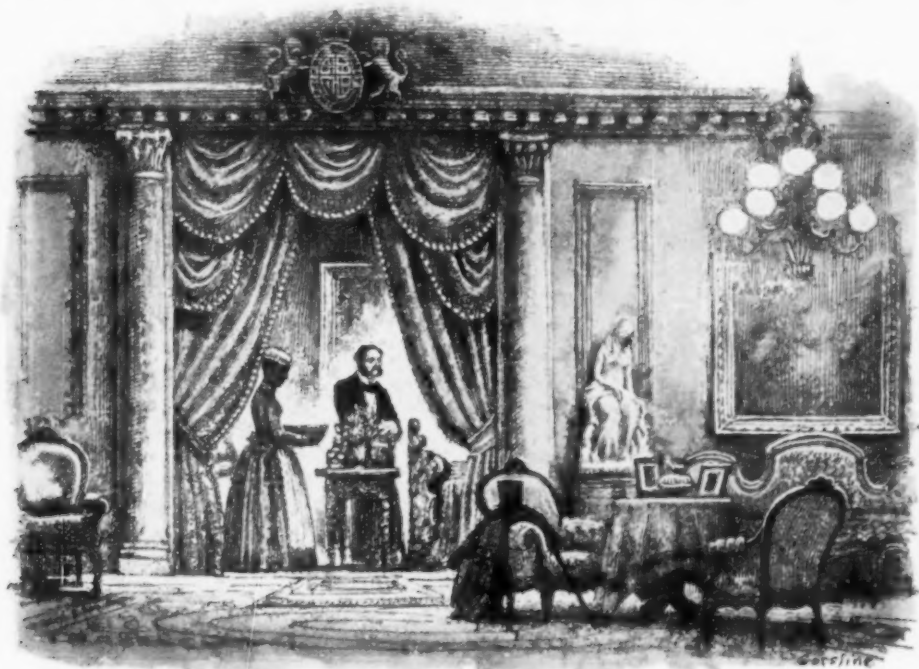
### **St. Louis**

Dr. GRAYSON CARROLL, professor of clinical urology and head of the department at St. John's Hospital, has been named president-elect of the American Urological Association. He will preside over the Association's national meeting to be held in St. Louis in 1963.

### **Seton Hall**

Dr. HUMBERT L. RIVA, who has spent much of his professional life in the U.S. Army, has been named head of the department of obstetrics and gynecology. He retired from the service on June 30, with the rank of colonel and at the same time resigned from the Georgetown University School of Medicine where he was clinical associate professor of obstetrics and gynecology. Since 1949, Dr. Riva has been chief of obstetrics and gynecology at Walter Reed General Hospital. Simultaneously he has held a number of other medical posts, including consultant to the Surgeon General, and to the White House.





## *'Breathe deeply, Your Majesty.'*

Early in the 1850's, opposition to chloroform and its use in painless childbirth was based on moral and religious grounds, rather than medical. The disputes had been raging for three years when John Snow, the first London "specialist in anesthesia," was unexpectedly summoned to Buckingham Palace. Queen Victoria was then awaiting the birth of her fourth son. Prince Albert received Snow and questioned him about the possible dangers of anesthesia and painless childbirth. Impressed by the physician's attitude and knowledge, the Prince Consort requested Snow to hold himself in readiness for the Queen's confinement.

On the morning of April 7, 1853, Snow placed a handkerchief soaked in approximately thirty drops of chloroform over the Queen's nose

and mouth. To the relief of the witnesses, the Queen responded at once. Employing his own modern-sounding method of intermittent anesthesia, Snow applied the handkerchief some fifteen more times, using fifteen to twenty drops each time. After a tense fifty-three minutes, Prince Leopold was born without the slightest complication, and without any expression of pain from the Queen. Overnight, the example set by Victoria made childbirth under chloroform a fashion in Great Britain. For a time, the victory of chloroform drove ether completely from the field, only to yield ground later after the advantages of each had been carefully weighed.

—JURGEN THORWALD: *The Century of the Surgeon*, New York, Pantheon Books Inc., 1957, pp. 135-137.



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Dr. RICHARD A. CHAMBERS, Oxford educated physician, will take over as director of the division of neurology when Dr. Joseph M. Foley leaves the post to become professor of neurology at Western Reserve University School of Medicine.

Prior to joining the Seton Staff in 1960, Chambers was assistant physician in neurology at Toronto General Hospital. He also was clinical teacher in neurology and associate in neuropathology at the University of Toronto School of Medicine. When he assumes his new post in September he will hold the rank of professor of neurology.

Dr. DAVID F. OPDYKE, professor and chairman of the physiology department, is taking a leave from his post and for the next 18 months will be visiting professor of physiology on the medical faculty of the University of Airlangga, Surabaya. Dr. Opdyke heads for the Orient under a program sponsored by the International Cooperative Administration, a division of the U.S. Department of State, and the University of California. The purpose of the program is to train the Indonesian medical faculty and to install the American system of medical education.

#### Stanford

Dean ROBERT H. ALWAY was one of four Americans participating in the International Symposium on Hospital and Medical School Design in Dundee, Scotland, July 12-15. The symposium was held at Queen's College, the college of the University of St. Andrews (cq) which includes the University's medical school.

Dr. WILLIAM W. GREULICH, executive head of the anatomy department, has been named senior scientific attache for the U.S. Embassy in London. From 1952 to 1954 Dr. Greulich held a similar post

when he was science advisor to Dr. James B. Conant, then U.S. High Commissioner for Germany. Greulich will be responsible for advising embassy officials on scientific issues, expediting exchange programs such as the Fulbright scholarships, visiting universities in Great Britain, and attending scientific meetings as an official United States representative.

#### S.U.N.Y. Brooklyn

The Board of Trustees of State University of New York has approved plans and specifications for the construction of a new teaching and research hospital at the Downstate Medical Center in Brooklyn at an estimated cost of nearly \$20 million. Construction is expected to begin in the fall and the hospital will be available for use in 1964. The 350-bed hospital will be a U-shaped, eight story structure. The Medical Center presently enrolls 600 medical students who receive their last two years of clinical training in 12 affiliated teaching hospitals. The combined facilities of these hospitals and of the new teaching and research hospital, which has been designed specifically as a training center for medical education, will enable the medical school to increase its enrollment to the State University goal of 800 students. Approximately a quarter of the building will be devoted to medical research. A Public Health Service grant of \$2,362,500 will help finance this research portion of the building.

Dr. PERRIN H. LONG, who will retire as professor of medicine August 31, has been named professor emeritus. Dr. Long served as chairman of the department of medicine at the Downstate Medical Center and chief of medicine at Kings County Hospital from 1951 to 1960 and as professor of medicine from 1960 to the present.

### S.U.N.Y. Syracuse

The Upstate Medical Center is combining its departments of obstetrics and gynecology into a single department, and named to head the single unit is Dr. ROBERT E. L. NESBITT Jr., professor of obstetrics and gynecology and chairman of the department at Albany Medical College. Nesbitt will join the faculty in September when the reorganization takes place. A similar reorganization of the obstetrical and gynecological services at Memorial Hospital will be made at the same time. Dr. Nesbitt will be designated as chief of the combined services at the hospital.

Dr. CHESTER E. CLARK is presently the chairman of the gynecology department and Dr. EDWARD C. HUGHES is chairman of the obstetrics department. Both men will be active participants in the reorganized department and will continue to hold their present faculty positions as professor in the combined department.

### Tennessee

Dr. RONALD H. ALDEN, who has been serving as acting dean of the School of Biological Sciences at the University of Tennessee Medical Units, has been named dean. Dr. Alden also is associate dean of the Medical Sciences Graduate School. A graduate of Stanford University and Yale, Dr. Alden joined the faculty in 1942 and has been chief of the anatomy division since 1951. Dr. G. GORDON ROBERTSON, professor of anatomy since 1952, will succeed Dr. Alden as chief of the division of anatomy.

### Vanderbilt

Dr. HERBERT C. FRANCIS, head of the department of radiology, died May 29, of a heart attack at his home. Dr. Francis, who had been connected with Vanderbilt since 1937, had been professor

of radiology since 1947 and head of the department since 1955.

### West Virginia

Dr. EDWARD J. STUART, associate professor of pathology, has been named assistant dean of the School of Medicine. Dr. Stuart, who assumed his new post July 1, will continue as a member of the teaching staff, working on a part-time basis in administration.

Dr. WILHELM S. ALBRINK, former associate professor of pathology at Yale University School of Medicine, joined the West Virginia staff July 1 as professor and chairman of the department of pathology. He succeeds Dr. MILFORD L. HOBBS, who resigned June 30.

### Western Reserve

Two major administrative appointments in the medical school were announced recently by University President JOHN S. MILLIS. Dr. AUSTIN B. CHINN, associate professor of medicine and director of the teaching program in Comprehensive Health Services, has been named associate dean of the Medical School. Dr. EDWARD O. HARPER, associate professor of psychiatry, has been named assistant dean. Dr. Chinn has been on the WRU faculty since 1946. He was Medical Director of Benjamin Rose Hospital from 1953 until 1960. Since 1960, he has been principal investigator and chairman of the Committee on Aging Research at the university.

Prior to his appointment to the WRU Medical School staff in 1937, Dr. Harper was on the faculty of the University of Pennsylvania School of Medicine. He has served as consultant in psychiatry for the health services of the University of Pennsylvania, Western Reserve University, and Oberlin College. Since 1953 he has served as consultant to the Surgeon General of the U.S. Army.

**Wisconsin**

Dr. ROBERT D. COYE, assistant professor of pathology, has been appointed assistant dean of the Wisconsin Medical School. In his new post Dr. Coyle will be in charge of student admission, recruiting of new students, and will handle student affairs as they relate to finances. Coyle has been a member of the staff since 1955, coming to Wisconsin as an instructor in pathology.

**Yale**

Dr. JOHN R. PAUL and Dr. LEON S. STONE, each having served more than 30 years on the faculty, retired in July. While both men have reached the retirement age of 68, they will continue special research projects at Yale and at other institutes.

Dr. Paul, who was appointed to the Yale faculty in 1928 as assistant professor of medicine and attained the rank of professor in 1940, was one of the 15 persons named, in 1957, to the newly-created Polio Hall of Fame in Warm Springs, Ga. In his retirement he will be in charge of the World Health Organization Reference Serum Bank which has already been established at the Yale School of Medicine.

Dr. Stone has been on the Yale faculty since 1921 when he was named instructor in anatomy. He has been Bronson Professor of Comparative Anatomy since 1940. Dr. Stone has been cited for his work in the field of vision and has conducted pioneer studies on transplanted eyes. He will continue his research on retinal regeneration and vision in his Yale laboratory.

## from the National Institutes of Health

**New Types of Long-Term Support Grants Announced**

Two new forms of long-term Federal financial assistance to universities, medical schools, and other non-Federal institutions engaged in medical and biological research, are now available from the National Institutes of Health.

One of the new forms of support, "research center grants," will provide more extensive assistance for the physical resources, particularly research beds and associated laboratories, required for modern medical research.

NOTE: Readers desiring copies of publications mentioned in this section of *J. Med. Educ.*, may, unless otherwise noted, obtain them as well as additional information on any subject reported herein, by addressing their requests to the Office of Research Information, Room 115, Bldg. T-19, National Institutes of Health, Bethesda 14, Md.

The second type, "research program-project grants" will assist in financing broadly defined, continuing research programs.

It was emphasized by NIH, in defining the objectives and purposes of the two new categories of research grants, that they supplement rather than replace long-standing NIH programs of support for specific research projects of individuals and small groups of scientists.

One of the purposes of the new grants is to systematize and expand NIH efforts to enable research institutions to provide better facilities and services and a more stable environment in which the work of outstanding individual scientists and research teams can go forward.

Both types of grants will usually be awarded for an initial period of seven years. Applications for renewal will be reviewed during the fifth year. If ap-

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proved at that time, grants may be renewed for an additional five years. This process will be repeated every five years.

Literature defining the new research grant categories in detail has been distributed to medical research institutions throughout the country, and is available from NIH upon request.

#### **Stipends Increased for NIH Postdoctoral Fellowships**

A stipend increase of \$500 for postdoctoral fellowships was announced in June by the NIH Division of Research Grants. The decision is in consonance with a similar increase made effective by the National Science Foundation. Affected are postdoctoral fellowships (new or continuation) awarded on or after July 1, 1961.

The new stipend scale will be as follows: first level—\$5,000; second level—\$5,500; third level—\$6,000. The higher stipends are to be provided for all postdoctoral awards made from funds appropriated from Fiscal Year 1962 funds; awards made from funds appropriated for earlier fiscal years will not be affected. Allowances for dependents, travel and supply grants will remain unchanged.

#### **Psychopharmacology Abstracts Now Available on Monthly Basis**

Providing world-wide coverage of current literature in the field of psychopharmacology, a new monthly publication, *Psychopharmacology Abstracts*, is being published by the Psychopharmacology Service Center of the National Institute of Mental Health through Medical Literature, Inc., Philadelphia, a non-profit organization specializing in the preparation of abstract journals.

The new abstract journal is an integral part of the Center's activities. Primary reason for launching an ab-

stracting service is the breadth of the field of psychopharmacology, which straddles several traditional scientific disciplines—psychiatry, medicine, anthropology, psychology, pharmacology, neurophysiology, botany, biochemistry and organic chemistry. Relevant literature is found in many scattered sources and is not easily accessible to the specialist in one field. No presently available single abstracting service covers all the material of interest to the psychopharmacologist.

For purposes of defining material relevant for inclusion in *Psychopharmacology Abstracts*, psychopharmacology is considered to be the study of the effects of drugs on behavior, normal or abnormal, in animals or in human beings. Drugs, in this context, are considered to be all chemical substances, exogenous or endogenous, having an effect on behavior.

#### **86 Physicians Start Training In NIH Residency Programs**

Eighty-six physicians reported to NIH on July 1 to begin their training in research as Clinical Fellows, Clinical Associates and Research Associates. More than 1200 inquiries and almost 500 applications were received concerning these appointments which were made 18 months ago. The applications for July, 1963, and later appointments are now being received; deadline is Sept. 30. Successful candidates on the next selection list will be commissioned in the Public Health Service Reserve, effective July 1, 1962 and deferred from service in the Armed Forces until they report for active duty at NIH.

For full information about NIH residency programs, and for applications, write to: Chief, Clinical and Professional Education Branch, Clinical Center, National Institutes of Health, Bethesda 14, Md.



#### RESIDENCY PROGRAM

Clinical Fellows (Residents) are appointed to those Institutes and professional departments where residency training, approved by an American Specialty Board, has been developed.

#### CLINICAL ASSOCIATES

The several Institutes also appoint young physicians to clinical responsibilities equivalent to those of residents. In each instance the appointee, known as a Clinical Associate, is the junior member of a clinical research team. Considerable time is devoted to research in the laboratory and on the ward, and excellent opportunities to advance in clinical knowledge are made available. Medical graduates with one or more years of specialty training beyond internship and demonstrated research ability, training, or interest are eligible. Appointees are not formally enrolled as fellows or residents and the programs have not been formulated to meet the requirements of specialty boards. In most instances clinical associates have received a year of credit toward admission to specialty board examinations upon certification of the Clinical Director of the Institute after completing their appointment.

#### RESEARCH ASSOCIATES

Each year a number of physicians who have finished internship or one year of residency training are appointed to positions in laboratory research. They are carefully matched, after a series of conferences, with a preceptor who is a leading investigator in a field of their interest. Their immediate instruction and supervision is supplemented with 268 hours of planned basic science courses and seminars. Selection is based on demonstrated potential and interest in basic research.

#### U.S. Cancer Scientists Return From Official Visit to Russia

Members of a six-man cancer mission to Russia returned to the United States in June after a two-week tour of Soviet cancer institutions. Headed by Dr. KENNETH M. ENDICOTT, director of the National Cancer Institute, the group consisted of Drs. HOWARD C. ANDERVONT and ROY HERTZ, NCI staff members, and Drs. HENRY T. RANDALL, CHESTER STOCK and GILBERT DALLDORF of the Sloan-Kettering Institute for Cancer Research, New York.

This visit returned one made last fall to NIH and Sloan-Kettering by a group of Russian scientists. Both trips were arranged in accordance with an agreement between the United States and USSR for cooperation in the exchange of missions in scientific, technical and cultural fields during 1960-1961.

The U.S. group's itinerary, planned by the Russians, included the Institute for Experimental and Clinical Oncology, the State Institute of Oncology im. P. A. Gertzen, and the Gamaleya Institute of Microbiology and Epidemiology in Moscow, and the Institute for Oncology in Leningrad.

#### Several Medical Groups Plan To Hold Fall Meetings at NIH

In addition to one five-day national meeting which will be held at NIH, special programs have been arranged for members of several national and international medical organizations attending meetings in Washington and New York during the months of September and October.

The American Fracture Association, meeting in Washington September 17-21, will have a special session in the NIH Clinical Center on September 19. Featured at this session will be a discussion on "Recent Advances in Treatment of

Gout" presented by Dr. Joseph J. Bunim, clinical director of the National Institute of Arthritis and Metabolic Diseases.

The FAO International Conference on Fish and Nutrition, meeting in Washington September 19-27, will hold a special session at NIH in the Clinical Center.

The Post-Graduate Assembly of the Endocrine Society will hold a five-day session at NIH October 2-6.

Delegates from the International College of Neurosurgeons, meeting at the Statler Hotel in Washington October 14-20 will visit NIH on a day yet to be selected for a tour of the Clinical Center and a special program.

Delegates to the Fourth International Congress on Allergology, meeting in New York October 15-20, will visit NIH for a special one-day program as part of a post-Congress tour on October 24.

#### **NIH Names in the News**

CLINTON C. POWELL has been appointed as Assistant Director of the National Institute of Allergy and Infectious Diseases. Dr. Powell, who assumed his new duties July 1, was formerly deputy director of the Division of Research Grants. Among other duties he will serve as Director Justin M. Andrew's administrative representative for NIAID research grants activities.

Dr. JOHN EDGCOMB, of the Pathologic Anatomy Branch, National Cancer Institute, left Washington late in June for a stay of approximately six months in Russia as a participant in the US-USSR scientific and cultural exchange program. He is the first cancer investigator to visit Russia for long-term collaborative studies under the terms of the agreement signed November 29, 1959 by representatives of the two countries. He will be assigned to the Institute of Experimental Pathology and Therapy of

Cancer, Academy of Medical Sciences, Moscow.

Dr. KELLY M. WEST has been appointed as Special Assistant for Scientific Affairs to Dr. MARTIN M. CUMMINGS, Chief of the Office of International Research Activities, NIH. Dr. West was formerly associate professor in the department of medicine, University of Oklahoma School of Medicine. In his new position Dr. West will act as principal advisor to Dr. Cummings in the planning and development of NIH overseas research programs and their coordination with the activities of other international research and scientific organizations.

Dr. RICHARD R. WILLEY has been appointed Deputy Chief of the Division of Research Grants. He was Chief of the Research Grants Branch, Division of General Medical Sciences, from 1958 to 1960. Except for a period of travel and study during the past year, Dr. Willey has been at NIH since 1954. He assumed his new post July 1.

Dr. SANFORD M. ROSENTHAL and Dr. HARRY EAGLE, two scientists who have served the Public Health Service for many years, retired in June. Dr. Rosenthal, retiring after 33 years at NIH, had been chief of the Laboratory of Pharmacology and Toxicology, National Institute of Arthritis and Metabolic Diseases since 1948. He will continue his research studies as a special NIH consultant in pharmacology and will spend the next year supervising the Institute's burn shock project in Lima, Peru. Dr. Eagle, leaving his post as chief of the Laboratory of Cell Biology, National Institute of Allergy and Infectious Diseases, after 25 years of service, becomes chairman of the department of cell biology at the Albert Einstein College of Medicine.

## Items of Current Interest

### **September Issue of J. Med. Educ. International in Scope**

To coincide with the World Medical Association which will be held in Rio de Janeiro, Brazil, Sept. 15-20, *The Journal of Medical Education* is once again going international by featuring articles from several foreign countries in its September issue.

The first "special international issue" of *The Journal* made its appearance in August 1959 when the Second World Conference on Medical Education met in Chicago. The September 1961 issue, which will go to all medical schools throughout the world, will contain original manuscripts from 16 foreign countries, each accompanied by an abstract in Interlingua.

### **Rutgers to Offer Two Years of Medicine**

A school of the Basic Medical Sciences is being planned at Rutgers University, New Brunswick, N. J. Under the proposed program, students would be able to complete two years of medical studies at Rutgers and then transfer to a regular four-year medical school for their junior and senior years.

A grant of \$1,073,200 by the Kellogg Foundation will aid Rutgers in establishing the new school. Of the Foundation grant, about half will be used for planning the new unit, adding a medical faculty, and for consultation and equipment purposes.

The first class of 50 is scheduled to enroll in the fall of 1963 with a doubling of the enrollment the following year. It will be the first medical training program attached to a public university in New Jersey.

### **Damon Runyon Fund Establishes Cancer Research Fellowships**

The Damon Runyon Memorial Fund for Cancer Research announces the establishment of Cancer Research Fellowships with a minimum of \$5,000 as an annual grant.

According to Fund President Dan Parker, the post-doctoral fellowships are "intended for the training of young investigators in the field of cancer whose research potential may be further developed by association with an outstanding investigator or research group."

Eligibility for the fellowship grants is limited to men and women who have received their doctorates in medicine, philosophy, or science, or who have completed all requirements leading towards doctoral degrees.

Applications for fellowships, which will be activated for 1962, may be obtained from the office of the Damon Runyon Memorial Fund for Cancer Research, Inc., at 730 Fifth Ave., New York 19, N.Y.

### **Heart Association Issues Report on Postgraduate Medical Education**

A report on the status and aims of postgraduate medical education, planned to serve as a guide to future activities in this field, has just been published by the American Heart Association. Entitled, "The Physician's Continuing Education," the report was prepared on behalf of the Association's Committee on Professional Education by a group of 13 volunteer physicians headed by Dr. STEWART G. WOLF, professor of medicine and chairman of the department, the University of Oklahoma School of Medicine.

The report discusses various educational techniques for postgraduate or "continuing" education in terms of their relative merits, and emphasizes the need for research to develop new training methods as well as to improve evaluation of those now currently used.

Copies of the report, a 48-page paper-bound volume, may be obtained from local or state Heart Associations or through the American Heart Association, 44 East 23rd St., New York 10, N.Y., at 60¢ per copy.

#### **Dr. Darley Named Officer of National Society for Medical Research**

At a recent meeting of the National Society for Medical Research, Dr. WARD DARLEY, Executive Director of the Association of American Medical Colleges, was named a Vice-President of the organization. Also elected Vice-president was Dr. JOHN B. YOUMANS, former AAMC president and now Director of the Division of Scientific Activities of the American Medical Association.

The National Society for Medical Research is an organization maintained by 670 of the major organizations and institutions in the United States concerned with research in biology and medicine. The Society is the hub of a cooperative program to build public understanding of the methods, needs, and

accomplishments of medical research.

Dr. HIRAM E. ESSEX, emeritus professor of physiology and former chairman of the section on physiology of the Mayo Foundation for Medical Education and Research, takes over as President. He succeeds Dr. LESTER R. DRAGSTEDT, former professor and chairman of the department of surgery at the University of Chicago; now at the University of Florida.

#### **Medical Scholarships for Negro Students**

Nine outstanding Negro college students have been awarded four-year medical scholarships with annual awards ranging from \$400 to \$1250 each under a program designed to help relieve the critical shortage of Negro physicians and surgeons in the United States.

The medical scholarship program is financed by a substantial grant from the Alfred P. Sloan Foundation to the National Medical Fellowships, Inc., which receives applications, selects candidates, and administers the program. One of the program's objectives is to make it possible for highly qualified Negro students to attend the nation's leading medical schools. The National Medical Fellowships, Inc., a non-profit organization, is located at 951 E. 58th St., Chicago, Ill.

# **PUBLICATIONS**

of the

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

Useful information for both medical educators and students is published by the Association of American Medical Colleges. These publications may be obtained from the Association Headquarters office, 2530 Ridge Avenue, Evanston, Illinois.

## **BOOKS AND PAMPHLETS**

- Admission Requirements of American Medical Colleges—1960-61 (\$2.00).
- History of the Association of American Medical Colleges—1876-1956.
- Financial Assistance Available for Graduate Study in Medicine (\$2.50).
- Medical Schools in the United States at Mid-Century (\$4.50).
- Education of Physicians for Industry (\$2.00).
- A Study of Medical College Costs (\$1.50).
- Medical Education for Foreign Scholars in the Medical Sciences (\$1.50).
- Film Catalog

## **THE JOURNAL OF MEDICAL EDUCATION**

A monthly journal devoted exclusively to medical education.

Subscription rates: \$7.00 per year, \$13.50 two years, \$19.50 three years. Foreign \$8.00 per year, \$15.50 two years, \$22.50 three years. Pan America and Canada \$7.50 per year, \$14.50 two years, \$21.00 three years. Single copies \$1.00.

## **TEACHING INSTITUTE REPORTS** (\$2.00 paperbound, \$3.00 clothbound).

- Report of the Conference on Preventive Medicine in Medical Schools (Report of the 1952 Institute).
- The Teaching of Physiology, Biochemistry and Pharmacology (Report of the 1953 Institute).
- The Teaching of Pathology, Microbiology, Immunology and Genetics (Report of the 1954 Institute).
- The Teaching of Anatomy and Anthropology in Medical Education (Report of the 1955 Institute).
- The Appraisal of Applicants to Medical School (Report of the 1956 Institute).
- The Ecology of the Medical Student (Report of the 1957 Institute).
- Report of the First Institute on Clinical Teaching (Report of the 1958 Institute).
- Report of the Second Institute on Clinical Teaching (Report of the 1959 Institute).

## **PUBLICATIONS OF RELATED ORGANIZATIONS**

- Hospitals Participating in the Matching Program 1961 (NIMP).
- Results of the Matching Program 1961 (NIMP publication).
- The Student and the Matching Program 1961 (NIMP publication).
- Medical College Admission Test—Bulletin of Information 1961 (Psychological Corporation).

In addition to the above publications, the American Psychiatric Association, 1700 Eighteenth St., N.W., Washington, D.C., still has available copies of the two Institutes on the teaching of psychiatry: Psychiatry in Medical Education—1951 Conference (\$1.00) and the Psychiatrist: His Teaching and Development—1952 Conference (\$2.50).

# PERSONNEL EXCHANGE

## Faculty Vacancies

**PSYCHIATRIST:** Faculty appointment in medical school for psychiatrist, preferably with experience since residency. Must be interested in clinical teaching of residents and students. Time available for own treatment of in-patients or out-patients, also for research. Laboratories available, also personal and didactic analyses and opportunities for full psychoanalytic training locally. Unique opportunity to join an active and established department with unlimited opportunities. Salary competitive. Address: V-109.

**PREVENTIVE MEDICINE:** Full-time appointment, at associate, or full professorial level depending upon qualifications and ability, to head up an established, ongoing department of postgraduate education with opportunities for teaching and research participation and development in the department of preventive medicine of a university medical school. Some background in preventive medicine or administrative medicine is desirable. Salary around \$14,000 plus fringe benefits. Address: V-110.

**OBSTETRICIAN-GYNECOLOGIST:** Board eligible or Board certified obstetrician-gynecologist for full-time assistant or associate professorship in well established university department. Salary based on training and experience. Modern physical plant with research building. Adequate clinical material and opportunity to develop areas of personal interest. Send curriculum vitae. Address: V-111.

**INTERNIST:** To direct Pulmonary Disease Section of a large general hospital closely affiliated with medical school. Faculty appointment. Broad clinical, research, and teaching opportunities. Active Pulmonary Function Laboratory. Contact: Chief, Medical Service, V.A. Hospital, Albany, N. Y.

**MEDICAL SERVICES DIRECTOR:** To have full charge of all medical and surgical activities for Kern County General Hospital System, under administrative direction of Hospital Administrator; direct and coordinate medical services, supervise operation of intern and resident teaching programs. M.D. degree from approved medical school, approved internship, completion of approved residency and three years experience in practice of medicine, two years of which must have been in teaching or supervisory capacity. Certification by an American Board, California M.D. license. Salary \$15,228 to \$18,504 annually. Write to: C. Leon Bryson, Kern County General Hospital, 1830 Flower St., Bakersfield, Calif.

**RADIOLOGIST:** To assist staff radiologist in operation of X-ray department at Kern General Hospital including supervision of technical employees, assisting in resident physician training. Active department. Possession of valid license to practice medicine in California required; certification or eligibility for certification by American Board of Radiology is desirable. Salary \$11,928 to \$14,508. Write to: Kern County General Hospital, 1830 Flower Street, Bakersfield, Calif.

**MEDICAL EDUCATION DIRECTOR:** Board Certified or comparable to requirements for Board Certification to direct an approved internship and residency program. Two hundred sixty-six bed community hospital with medical school affiliation in University City. Write and include curriculum vitae: Arthur V. Crandall, Administrator, Brackenridge Hospital, Austin, Texas.

**EPIDEMIOLOGIST:** A newly established, full-time faculty position now available. Candidates with medical degree preferred. Background and experience in epidemiology and biostatistics required; background in infectious disease studies with overseas field experience desirable. Duties will include organizing

and directing training program in epidemiology and biometrics at a World Health Training Center now under development at this medical school. Opportunities will be available for field studies at overseas base. For further information, contact George Entwistle, M.D., Chairman, Department of Preventive Medicine and Rehabilitation, University of Maryland School of Medicine, Baltimore 1, Md.

**MEDICAL EDUCATION COORDINATOR:** Progressive general hospital in East desires full-time M.D. to coordinate expansion of educational program for interns and residents; educational potentialities unlimited; abundant service patients; 40 Boarded specialists representing all fields; research program contemplated; cardiac catheterization under development. Address: Paul G. Wedel, Administrator, The Williamsport Hospital, 777 Rural Avenue, Williamsport, Pa.

**BACTERIOLOGIST:** University Hospital has a vacancy for a medically qualified bacteriologist. Appointment also carries a university teaching position. Salary \$10,000-\$14,000 per annum. Applicants should have hospital experience. Applications stating date of birth, qualifications, experience, present appointment, and the names of three references should be sent to the Director of Bacteriology, University Hospital, Saskatoon, Saskatchewan, Canada.

**MEDICAL TECHNOLOGIST:** ASCP Registered medical technologist (female) with Bachelor's degree and 2 years experience to work in curriculum of medical technology, department of pathology. Position is chiefly assisting in administration and teaching. Salary open, dependent upon qualifications. Reply: Dr. J. F. Kuzma, Director of Department of Pathology, Marquette University School of Medicine, Milwaukee 3, Wis.

**MEDICAL LIBRARIAN:** University desires Medical Librarian at an initial salary of \$6,500. The successful candidate will receive faculty status equivalent to that of departmental chairman in the Faculty of Medicine. Duties will include full responsibility for the administration of the Medical Library. Minimum qualifications must include the Medical Library Association Grade I certificate, or its equivalent, with some experience in library administration. Applications should be addressed to the Chief Librarian, Macdonald Memorial Library, Dalhousie University, Halifax, Nova Scotia.

**BIOCHEMIST:** Junior staff position open in expanding biochemistry department of mid-western medical school. Teaching and research. Opportunity for advancement. Salary competitive. Valuable fringe benefits. Address: V-112.

**PHYSICIANS:** County hospital affiliated with three medical schools, desires qualified full-time physicians for intern and resident teaching and patient care responsibilities in following fields: internal medicine, general surgery, pediatrics, psychiatry, obstetrics and gynecology, radiology, forensic pathology, director of outpatient clinic, and physician experienced in rehabilitation to direct long term medical care program. All starting salaries over \$14,000. Include curriculum vitae with inquiry to: F. G. Gillick, M.D., Santa Clara County Hospital, San Jose-Los Gatos Road, San Jose 28, Calif.

**PATHOLOGIST:** Board certified or Board eligible pathologist for position combining hospital pathology, teaching in school of medicine and research. Applicant should be interested in both clinical pathology and pathologic anatomy. Compensation and rank dependent upon qualifications. For further information address: Theodore L. Perrin, M.D., The Creighton University School of Medicine, 302 N. 14th St., Omaha 2, Nebr.



To aid in solution of the problem of faculty vacancies, MEDICAL EDUCATION will list persons and positions available, as a free service. The school department or person may have the option of being identified in these columns or of being assigned a key number for each position listed. Mail addressed to key numbers will be forwarded to the person or department listing the request. Information for these columns should reach the Personnel Exchange, Journal of Medical Education, 2530 Ridge Avenue, Evanston, Illinois, not later than the 10th of the month which precedes the month in which the listings will appear.

# Personnel Available

**INTERNIST:** Certified; also certified in cardiovascular disease. Experience in medical school teaching as assistant professor at student, intern, resident and practicing physician level. Desires full-time position in teaching or community hospital and/or medical school. Address: A-479.

**INTERNIST-CARDIOLOGIST:** Board certified. Age 35. One year training in clinical cardiology and one year in cardiovascular laboratory — Harvard and Mayo Clinic. Now university instructor in England, returning shortly to U.S. Interested in practice, teaching, director of medical education. Address: A-480.

**PATHOLOGIST:** Age 56. Voluntarily retiring as professor and department head, University Medical Center, July 1, 1961. Twenty years teaching experience. Thoroughly experienced in service work. Desires position as teacher combined with service work, preferably surgical pathology. Address: A-481.

**PATHOLOGIST-ADMINISTRATOR:** Pathologist with excellent full-time academic background in administration, medical education, research and service responsibilities. Experience includes professorship and chairman department of pathology, development of research, curriculum, teaching methods, services, and coordinated medical school activities. Extensive publications. Desires teaching position with opportunity to aid in development. Eastern location preferred. Address: A-482.

**INTERNIST:** Certified. Age 35. Currently on faculty of Eastern medical school. Experience in private practice and administrative medicine. Desires appointment in teaching hospital and/or medical school with opportunities for clinical research in cardiovascular disease, teaching and administrative responsibilities. Address: A-483.

**PSYCHIATRIC SOCIAL WORKER:** Female, M.S., personal psychoanalysis. Three years experience in delinquency problems. Current appointment in medical school involves participation in clinical and teaching program in department of psychiatry. Desires similar position or other psychiatric clinical appointment. Southern California preferred. Available July 1, 1961. Address: A-484.

**INTERNIST:** Age 34, single, male. Currently on faculty of British Colonial medical school. Postgraduate training in clinical medicine and research. Experience in cardiac catheterization and haemodynamic investigations; also in life insurance medicine and some private consultative practice. Numerous publications. Desires faculty appointment or fellowship with opportunity for cardiological investigation. Address: A-485.

**OBSTETRICIAN-GYNECOLOGIST:** Age 35. PBK. AOA. Desires head administrative appointment in medical school or affiliated hospital, with opportunity to develop department. Ability in creative research, teaching, and operative gynecology. Institution must allow to be earned or pay a minimum of \$30,000. Address: A-486.

**SURGEON-THORACIC:** Age 34. Currently engaged in thoracic surgery residency training which includes all phases of pulmonary resectional surgery. Wide experience in heart surgery. Desires full-time medical

school appointment, balanced between teaching, research, and dog laboratory research. Address: A-487.

**MICROBIOLOGIST:** Ph.D. Many years experience in clinical bacteriology and mycology. Excellent background in parasitology and virology. Well qualified in many phases of public health microbiology. Medical school and A.S.C.P. teaching experience as well as administrative responsibilities. Publications. Desires challenging appointment in medical school. Address: A-488.

**ANATOMIST:** Ph.D. Male, age 43. Fifteen years teaching experience. Currently assistant professor teaching neuroanatomy and gross anatomy in school of medicine and dental medicine. Also experienced in histology and physiology. Trained in educational methods and testing. Desires opportunity for teaching and research in anatomy department or in a correlated pre-clinical medical program. Address: A-489.

**OBSTETRICIAN-GYNECOLOGIST:** M.B.B.S., India; F.R.C.S., Canada. University trained in U.S., immigrant to U.S. Desires teaching position, department of obstetrics and gynecology in a hospital with active educational program. Address: A-490.

**MEDICAL PHOTOGRAPHER:** A.B., age 35. Ten years experience in medical photography (including 7 years with Veterans Administration). Special training in photomicrography. Fluent knowledge of German. Desires position with medical school and/or hospital affiliated with medical school. Good references. Resumé and references on request. Address: A-491.

**PHYSIOLOGIST:** Ph.D., assistant professor. Long-term research program with staff of four based on continuing large N.I.H. grants. Basic and clinical aspects of endocrine physiology. Major physiology teaching responsibilities and experience. Seeks associate professorship in physiology. Address: A-493.

**PHARMACOLOGIST:** M.D., Punjab University, India. Age 27, married, one child. Publications, *Ind. J. Med. Sc.* and *J. Am. Pharm. Assn.* Presently research assistant, department of pharmacology, University of Agra. Desires position with U.S. medical school with opportunity for postdoctoral study. Address: A-494.

**PSYCHIATRIC SOCIAL WORKER:** M.A., University of Chicago School of Social Service Administration. Desires position as teacher of psychiatric social work to medical students. Twelve years experience as chief psychiatric social worker in two medical schools. Address: A-495.

**BIOPHYSICIST-PHYSIOLOGIST:** Ph.D., M.S., E.E., wishes faculty appointment, teaching and research. Publications, books. Areas of research interest—bioelectric studies, origins of congenital heart disease, biomedical engineering. Address: A-496.

**PHYSIOLOGIST-PHARMACOLOGIST:** Ph.D., faculty member of medical school. Teaching experience. Research in endocrine physiology and pharmacology of endocrine preparations. Publications and Society memberships. Desires teaching and/or research position with opportunity for independent research. Address: A-497.

**MICROBIOLOGIST-IMMUNOLOGIST:** Research and teaching experience in bacteriology and parasitology. Presently on medical school faculty. Desires faculty ap-

pointment appropriate for qualifications with opportunity for independent research. Would also consider a position in a medical foundation or in a City, County, or Federal Institution affiliated with a medical school. Address: A-498.

**PREVENTIVE MEDICINE-PUBLIC HEALTH:** Physician with M.D., Dr.P.H. degrees desires senior teaching position on medical school or public health school faculty. Numerous publications. Previous research, teaching, administrative and health department experience. Special interests are epidemiology, preventive medicine, and biostatistics. Address: A-499.

**INTERNIST:** M.D., M.S. in Med. Certified. Age 46. Wishes to abandon lucrative private practice of 18 years for full-time (or half-time) medical school appointment that includes teaching, OPD, and hospital practice. Extensive clinical experience and original publications in psychosomatic medicine. Capable of organizing and heading a psychosomatic division that will integrate general medicine and psychiatry. Address: A-500.

**ANATOMIST:** Ph.D. (Anatomy) March 1961. M.S. in Zoology and B.S. in Biology. Age 39, married, child. Presently teaching biology in midwest. Prefers return to anatomy since Ph.D. completed. Twelve years full-time teaching experience, including four in anatomy (histology, embryology, gross, comparative, and neurology). Publications. Research interests in histochemical aspects of mammalian development; program in progress. Prepared to contribute to graduate research training programs. References. Address: A-501.

**PHYSIOLOGIST:** Ph.D., age 39. Desires faculty appointment, teaching and research. At present associate professor of physiology in medical school. Teaching experience and research in respiratory physiology and neuropharmacology. Salary open. Address: A-502.

**PHYSIOLOGIST:** Ph.D., age 41. Also E.E. degree in electronics. Wide experience in cardiopulmonary and cardiac electrophysiology as well as medical instrument design. Member of American Physiological Society and Institute of Radio Engineers, etc. Assistant professor of physiology. Seeks faculty position in medical school or in a cardiopulmonary laboratory associated with teaching and research. Address A-503.

**PREVENTIVE MEDICINE:** M.D., certified in internal medicine and in a subspecialty, desires position in university department of occupational medicine or preventive medicine. Trained at Mayo Clinic and in university. Experience includes clinical investigation, medical school faculty and private practice. Address: A-504.

**PATHOLOGIST:** Age 39; Certified (FCAP 1961). Also three years internal medicine. Experienced director of hospital laboratory and director, school of medical

technology. Experienced in new laboratory designing. Extensive work in all fields of medical education, recruiting, all medical specialties, research personnel. Interested in cancer research etiology, early diagnosis, genetics, especially leukemias and lymphomas. Prefer establishing laboratories and programs in organizations or institutions, new or in building process. Address: A-505.

**BIOCHEMIST:** Ph.D., age 50. Will resign as research director of small drug firm for teaching-research appointment. Some medical school teaching experience early in career, but can offer extensive experience to teaching, to research (lipid metabolism; nutrition), and to cooperative projects with clinical and preclinical associates. Desires research or career professorship. Prefers no administrative duties. Address: A-506.

**ALLERGIST:** Age 40, board certified in allergy and pediatrics. Currently teaching part-time. Seeking full-time teaching position. Address: A-507.

**DEVELOPMENT CONSULTANT OR ADMINISTRATOR:** Desires position as consultant or administrator for new medical school establishment, or expansion of approved school. Fund raising background capped by six years as Executive Secretary, A.M.E.F. Recently launched program for new Saint Paul Medical School. Address: A-508.

**PHARMACOLOGIST-ADMINISTRATOR:** Ph.D., age 38. Ten years administrative, teaching and industrial research experience including international as well as Stateside assignments. Research interests in industrial toxicology, neuropharmacology and screening procedures. Teaching experience includes medical, dental, nursing, graduate and postdoctoral duties. Interested in academic administrative post, research coordination and graduate education. Available early in 1962. Address: A-509.

**MEDICAL ADMINISTRATOR:** M.D., Ph.D. in neurophysiology, neuropharmacology. Experience in administrative clinical research post. Some teaching experience. Strong interest in medical education. Desires either a full-time medical college administrative post or combined with basic science teaching position in physiology or pharmacology. Address: A-510.

**INTERNIST:** Age 43, board-certified with subspecialty interest in gastroenterology. Extensive teaching and administrative background. Interested in change of location, preferably to the northern half of U.S. Interests predominantly clinical and teaching with some research. Address: A-511.

**PEDIATRICIAN:** M.D., M.P.H., age 35. Certified pediatrician, with five years experience in pediatrics and pediatric allergy, teaching and staff duties at community hospitals and metropolitan teaching hospital. Seeking administrative position. Address: A-512.

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